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GREATER NEVADA

Its Resources and Possibilities

Issued by the Nevada Chamber of Commerce



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RENO, NEVADA

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Up-to-date
Strictly
First-class



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Organized 1902

Greater Nevada

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Its Resources & Possibilities

250,000 Acres of Additional Land to be at once Reclaimed
Great Opportunities for the Home Seeker

Wealth for the Miner

Untold Possibilities for the Agriculturalist and the Stock Grower
Gilt Edge Investments for Capital



Compiled and Arranged by Maude Morrow Garwood

Under the Authorization of the Nevada Chamber of Commerce
Reno, Nevada, 1905

Introductory.

NEVADA'S history has so often been written, and, as a rule, is so familiar to the average reader, that for the purpose of an introductory to this pamphlet, a brief reference to the most striking events and incidents of the State's pioneer days is all that seems necessary.

As early as the year 1825, the noted mountaineer, Jedediah S. Smith, crossed Nevada, then an unknown territory, from what is now known as Western Wyoming, passing down the Humboldt, which he named Mary's River, thence through the Walker River Valley and over the Sierras to the Coast via what afterwards became known as Walker's Pass. Shortly after, Smith returned to his company's headquarters on Green River, near Salt Lake, and the report of what he had seen and the possibilities of the Great West were painted in such glowing colors that ere long other parties were formed to take advantage of the opportunities which Smith told of, and to achieve, if possible, greater success in the way of discovery than Smith and his party had accomplished.

As the years moved on and the early and venturesome emigrants began to cross the plains, the frontiersmen of the Mormon faith began to settle in the fertile valleys of what was then Western Utah, the Sierras being the extreme western boundary. These small colonies traded with the hardy emigrants, selling them produce, feed for their wornout stock, and often refilling the trains for their long, hard journey to the valleys of California.

These colonies were located in Carson, Eagle, Washoe, and Steamboat Valleys, and in 1851 a squatters' government was formed, and the raising of live stock and the cultivation of the soil became an industry.

Then came the era when the California miner and prospector believed there were greater possibilities of hidden wealth in the barren and rugged hills of Western Utah than the Golden State afforded, so decided to "try his luck" among the Mormons. The latter did not take kindly to the advance of the gold-seekers into what was felt by this sect to be God's gift to His chosen people, but it soon became apparent that the advance of the Philistines was determined, and the faithful would have to return within the shadow of their temple for protection.

The Grosh brothers, while prospecting for gold in the locality now known as American Flat, found silver ledges of a very rich character and plentifully distributed over the adjacent hills. This was in the year 1855, and they continued their work with varying success until the year 1858, when one of them died. A year later, the Comstock Lode was discovered, and within two years one of the greatest mining excitements and, without doubt, the greatest mining district the world has ever known was a substantial reality, and the territory of Nevada was launched. From that on to the present time Nevada has had its periods of prosperity and of depression like other States. Her agricultural, live stock and manufacturing interests have added greatly to the advantages offered for the homeseeker, for within the confines of her territory men in all walks of life may find opportunities best suited to their particular taste and inclination and in greater variety than any other State in the Union. In the articles that follow information may be had in detail as regards climate, locality, prices and facilities of transportation as well as the various lines of industry and investment of which the man of energy or capital may be inclined to take advantage of.

Irrigation.

L. H. TAYLOR.

THIS project contemplates the utilization of the waters of the Truckee and Carson Rivers in the irrigation of about 375,000 acres of land in excess of the area now supplied, which area embraces about 40,000 acres in the basin of the Truckee River, and 50,000 acres in the Carson River Basin. In order to provide a water supply adequate for this extension of irrigation, it is planned to construct seven storage reservoirs, of which Lake Tahoe will be one, on the headwaters of the Truckee River, two reservoirs on the headwaters of the Carson River, and two others in the lower portion of the Carson River Basin, one of which latter, designated as the Lower Carson Reservoir, will be supplied in the main with water to be conveyed from the Truckee River in the canal now under construction.

The lands susceptible of irrigation comprise some 12,000 acres now unirrigated, in Reno Valley; 73,000 acres in Lemmon's, Spanish Spring and Warm Spring Valley, to the north and northeast of Reno; 35,000 acres in the vicinity of Wadsworth; about 200,000 acres in Carson Sink Valley; 35,000 acres in Upper Carson Valley; 30,000 acres in the vicinity of Dayton and Fort Churchill on Carson River; and 85,000 acres between Massie and Oreana Stations on the Central Pacific Railroad. The water supply is not adequate for the irrigation of all this area, but it is not yet definitely decided what portion will be excluded.

The works now under construction, and outlined for the immediate future, contemplate the irrigation of about 235,000 acres of land in the vicinity of Wadsworth and in the Carson Sink Valley. They comprise a main canal, heading in the right bank of the Truckee River, some ten miles above the town of Wadsworth, and running to the east and southeast a

distance of thirty-one miles, to the dam site of the Lower Carson Reservoir, about ten miles above Leetville. This canal for the first six miles of its course will have a capacity of 1,400 cubic feet of water per second. At the end of this section, a branch with a capacity of 250 cubic feet per second will take off to the north, crossing the Truckee River by means of an inverted siphon, running in the direction of Pyramid Lake, supplying some 25,000 to 27,000 acres of land, the major part of which is included in the Pyramid Lake Indian Reservation.

From the head of this Pyramid Lake branch to Carson River, the main canal will have a capacity of 1,200 cubic feet per second.

While it is designed ultimately to supply a considerable area of land directly from this main canal, the principal purpose of its construction is to convey waters of the Truckee River, which are used for power purposes during the non-irrigation season, to the Lower Carson Reservoir, where they would be impounded for use during the irrigating season in Carson Sink Valley.

I will state here that the combined capacities of the various reservoirs on the headwaters of the Truckee River are approximately 290,000 acre feet; of the Lower Carson Reservoir 286,000 acre feet; and of the other three reservoirs on Carson River, combined, 250,000 acre feet. This storage water will be used to supplement the normal flow of the Truckee and Carson Rivers during the irrigating season.

We are now inviting proposals for the construction of about thirty-seven miles of main distributing canals in the Carson Sink Valley, as indicated on map. Extensions of these to the laterals therefrom will supply the irrigable portions of Carson Sink Valley.

It is estimated that it will take three years from the present time to complete the canal and drainage system for the 235,000 acres of land in the lower portions of the Truckee and Carson River Basins. We expect, however, to be able

to supply water to some 30,000 acres of land in this district, for the season of 1905. When this portion of our irrigation system is complete, the plan is to begin the construction of that required for supplying the upper valleys which have been enumerated. It is possible, however, that we may extend a branch of the Truckee Canal practically paralleling the Central Pacific Railroad, to the Lovelock Valley on the Lower Humboldt River, for the purpose of supplying some 85,000 acres of land lying between Massie and Oreana on that road.

On March 23, 1904, the following circular giving information to intending settlers was issued:

“OFFICE U. S. RECLAMATION SERVICE,
19 EAST SECOND STREET,
RENO, NEVADA.

“MARCH 23, 1904.

“TO INTENDING SETTLERS ON PUBLIC LANDS UNDER TRUCKEE-CARSON IRRIGATION PROJECT:

“The lands to be irrigated by that portion of the irrigation system now under construction comprise about 235,000 acres situated in Washoe, Storey, Lyon and Churchill Counties, Nevada, being in the vicinity of Wadsworth on the Central Pacific Railroad, and in the Carson Sink Valley, about 200,000 acres being in the latter valley.

“Of this total area, some 25,000 acres are within the Pyramid Lake Indian Reservation, to the north of Wadsworth; about 70,000 acres, including railroad lands, are in private ownership; and the remainder, 140,000 acres, belong to the public domain. Of this latter, about 90,000 are now open to entry under the Homestead Act, subject to the provisions of the Reclamation Law, which authorizes the Secretary of the Interior:

“1. To limit the Homestead Entry to any area between 40 and 160 acres.

“2. To fix the price per acre that shall be charged for

water, which price shall return to the government the cost of the irrigation works.

“3. To fix the number of annual payments, not exceeding ten, and the date when the payments shall begin.

“4. To perform any acts and make all rules and regulations necessary to carry out the provisions of the law.”

“The lands under the Truckee-Carson Project can be entered under the Homestead Act only. The U. S. Land Office where entries are made is at Carson City, Nevada.

“There is no charge for the land other than the usual Land Office fees.

“All entries will be limited to from 40 to 160 acres of land, depending upon location, character of soil, roughness of surface and irrigability.

“All of the public land will be subdivided into homestead or farm tracts, each of which will embrace enough irrigable land to support a family comfortably, if well and carefully tilled under irrigation.

“Any unmarried person over 21 years of age, or any head of a family, who is, or has declared intention to become, a citizen of the United States, who has not used his or her homestead right, or who is not then owner of 160 acres of land, can file on any one of these tracts.

“Title to land cannot be acquired until all payments for water have been made.

“Residence must be established on land within six months after filing thereon, and must be continuous thereafter.

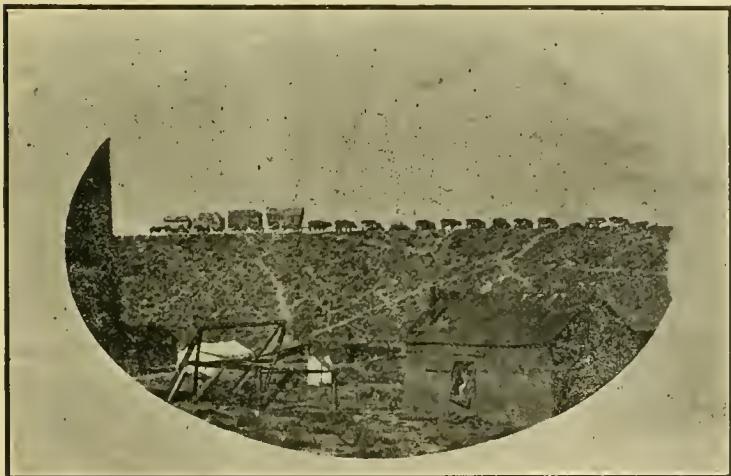
“The cost of water to settlers has not been exactly determined, but will probably be \$15 or \$20 per acre irrigable, payable in ten equal annual installments without interest.

“The land is situated at from 3,900 to 4,200 feet above sea level. The climate is dry, the mean annual precipitation being four to six inches. Snow rarely falls to a depth of three or four inches, and never lies more than a few days.

“Temperatures are about the same as at Salt Lake City, and the same crops raised there, flourish here.

"The soils are sandy loam, and ashy in the main, but in the lower part of Carson Sink Valley they are heavier, containing an admixture of clay. It is all valley land covered with sage-brush and greasewood.

"Well water, usually of good quality, can be obtained on the lower land at from ten to thirty feet from the surface, and on the higher bench land, at from 100 to 160 feet depth.



CARAVAN WINDING ITS WAY OVER THE SAGE-BRUSH HILLS
IN EARLY NEVADA DAYS - 1875

"The Central Pacific Railroad traverses a part of the land, but the main body in Carson Sink Valley lies from five to thirty miles from it.

"There are now some 12,000 or 15,000 acres of land under cultivation in Carson Sink Valley, and the present population is probably 800. There are five public schools in the valley.

"The contractors on the irrigation works now employ nearly 1,000 men, and as additional contracts are let, more laborers will be required.

"In the awarding of the contracts for the construction of the smaller distributing ditches an effort will be made to give settlers upon the land an opportunity to bid upon the work.

"It is likely that most of those settlers who desire, can find employment for themselves and teams on the canals during at least a part of their spare time, for the next two or three years.

"It will take about three years to complete the construction of the system for the irrigation of the above lands, but water for from 25,000 to 50,000 acres will be available in the spring of 1905.

"During the latter part of July, 1904, maps showing this land, with approximate location of canals for irrigation and drainage, and its subdivision into homestead tracts, will be completed and ready for inspection in this office, and afterward, additional maps of other parts of the irrigable lands will be prepared a reasonable time in advance of the completion of the works for delivery of water thereto.

"Prospective settlers are advised not to file upon land in advance of the preparation of these maps and the announcement of the Department of the Interior that it will be watered and is subject to entry under the Reclamation Law.

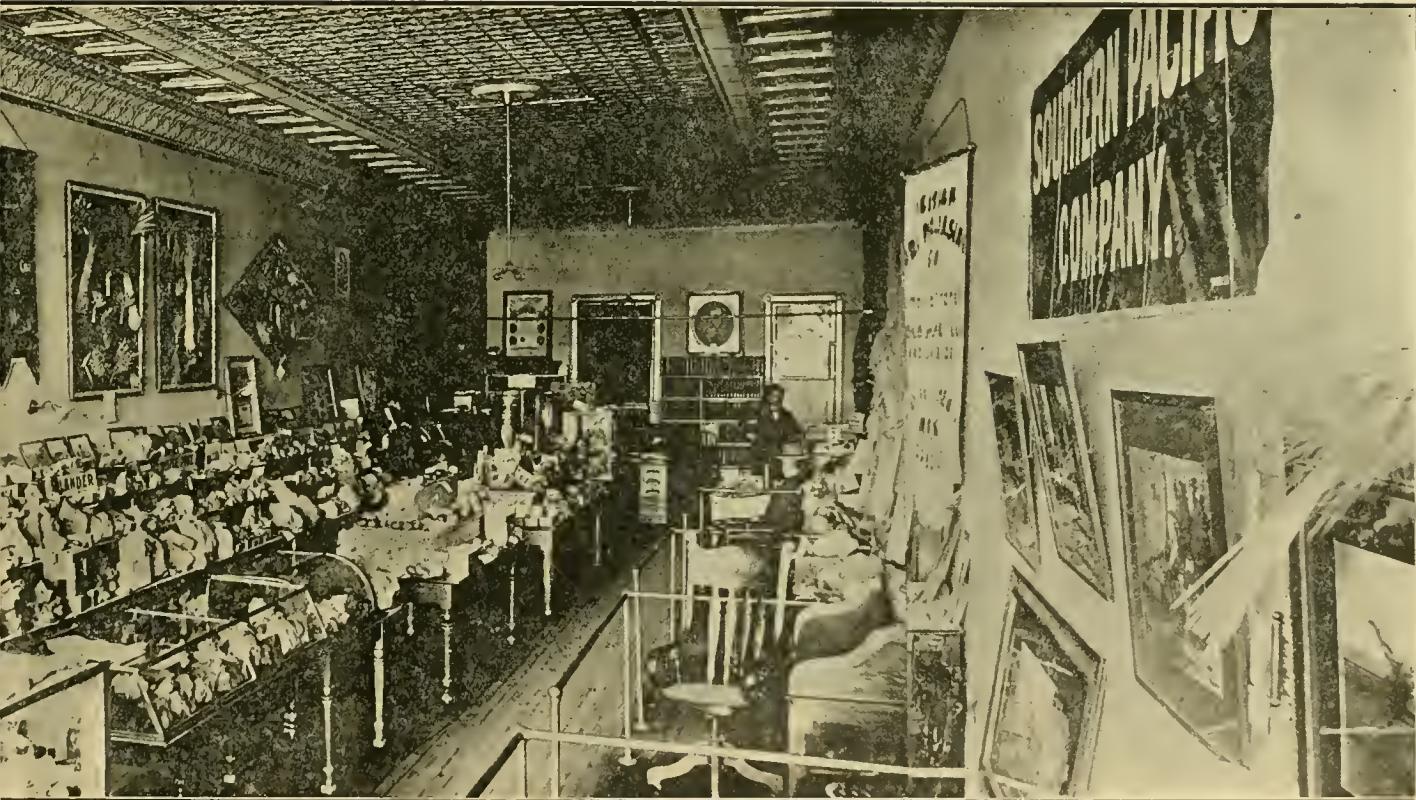
"All intending settlers are warned against *agents* claiming to have special or 'inside' information concerning the lands to be irrigated, or the location of the canals, and proposing to furnish this information, or to locate them on such lands for a consideration, for all such agents are frauds and impostors.

"L. H. TAYLOR, Engineer.

"In charge Truckee-Carson Project, U. S. Reclamation Service."



VIEW OF NEVADA CHAMBER OF COMMERCE



VIEW OF NEVADA CHAMBER OF COMMERCE

FRANCIS G. NEWLANDS, for ten years a member of Congress from the State of Nevada and now a member of the United States Senate, has been active for many years in the promotion of western interests, and in the agitation of both the silver and irrigation questions. In 1890, realizing that the development of the State had up to that time been a one-sided development, of mining interests only, he started a movement for the reclamation of the arid lands of the State, insisting upon it that Nevada could never reach her full proportions until she supplemented the mining development by the development of agriculture, commerce and general industries. With a view to giving the people of the State accurate information regarding irrigation possibilities, he employed engineers, the chief of whom, L. H. Taylor, is now supervising engineer in charge of the U. S. Reclamation Service, sent out surveying parties and secured exhaustive reports of the storage facilities and reclamation projects of the four leading rivers of the State—the Truckee, Carson, Walker, and Humboldt Rivers. He published the result of these investigations in 1892 in a printed report, accompanied by maps and diagrams, which was circulated throughout the State. He also, wherever practicable, secured the title to the reservoir sites, with a view to preventing them from being held for speculative purposes. He early announced that his purpose in entering upon and pursuing this work was not personal profit, but was simply

to aid public action either upon the part of the State government or upon the part of county governments or of irrigation districts to be organized in the various valleys of the State. The hard times resulting from the panic of 1893 prevented the taking up of any of these enterprises in the manner hoped for, so Mr. Newlands, having become a member of Congress, turned his attention to the question of national irrigation. He was one of the organizers of the National Irrigation Congress, and was always prominent in the work of education and agitation which it conducted. He sought upon every occasion when the subject could be introduced to present it in the House of Representatives, feeling assured that no national irrigation measure could be passed until the representatives of the eastern, southern and middle-western States were fully educated upon the subject. After a considerable period of education, both national conventions in 1896 declared for national irrigation, and immediately afterwards Senator Newlands framed a general measure, which subsequently became a law, and is generally known as the Newlands Irrigation Act. This bill provided that all the proceeds of the sales of public lands in thirteen States and three Territories should be put into a special fund in the treasury of the United States, to

be called the "Reclamation Fund." The bill then provided that the Secretary of the Interior should make investigation and surveys, and wherever he found an irrigation project practicable he should have the power to commence the work,



SENATOR FRANCIS G. NEWLANDS

provided the moneys necessary for each contract were then in the treasury. It also gave him the power to fix the cost of each project upon the lands reclaimed by the sale of water rights payable in ten equal annual instalments, without interest. It provided, also, that he should divide the land reclaimed into small tracts, ranging from 40 to 160 acres, the unit of entry to be varied in the acreage according to its ability to support a family. It also provided that the government could sell water rights for lands in private ownership, but that no sale of a water right should be made to any one person for more than 160 acres, the purpose being not only to prevent monopoly of the public lands, but to break up the existing monopoly by making it to the interest of owners of large tracts of land to divide up and sell their lands into small tracts to purchasers who could obtain water rights from the government.

Under this act over \$20,000,000 have been accumulated in the Reclamation Fund, and it is confidently expected that within the next twenty or thirty years from \$150,000,000 to \$200,000,000 will be expended in the various irrigation projects of the West. Already five large projects have been inaugurated in different States. The first inaugurated was that in Nevada, which embraces the union of the waters of the Truckee and Carson Rivers in the great Truckee-Carson Reservoir, from which water will be drawn and conducted by canals over about 350,000 acres in Churchill County. Other projects are



RESIDENCE OF SENATOR NEWLANDS, RENO

being investigated by the United States Geological Survey on other rivers of the State. Senator Newlands, in co-operation with the Irrigation Committees of the Nevada Senate and Assembly, drew up a State Irrigation Bill, which is intended to bring all the State authorities into co-operation with the Federal authorities in the work of irrigation in Nevada. This bill was characterized by President Roosevelt upon his recent visit to Nevada as a model of legislation for other States.

Some Factors in Sage-Brush Farming.

PROF. R. H. McDOWELL.

NEVADA became known to the world through the millions taken from the Comstock. In a few more years it will be known by its diversified farming including high-grade fruit farms, and herds of the best cattle, sheep and horses. In fact, several years ago Winters' runners were too fast for the best, and Governor Sparks' pure-bred cattle were well and favorably known from Chicago to California.

"Ten acres enough," was the terse remark of the veteran journalist, Horace Greeley. Some men in Nevada consider 1,000 to 30,000 acres enough till the time comes when they can get a few more acres. The United States Reclamation Service will ultimately bring under irrigation about 300,000 acres of good farming land, which will afford homes to several thousand families who will be given an opportunity to exchange the "six months winter and three months cold weather" for a land of sunshine.

AREA OF THE STATE.

The report of the Surveyor-General for 1901-1902 gives the area and classification as follows:

Area—112,090 square miles, or	71,737,600 acres
Grazing.....	30,000,000 "
Mineral	15,000,000 "
Agriculture.....	20,000,000 "
Forestry	2,000,000 "
Saline, borax and sulphur deposits and deserts.....	3,656,000 "
Lakes, rivers and sinks	1,081,600 "

The above area of land and a present population of 50,000 people would suggest that a large area—aside from present holdings and the 300,000 acres of the Reclamation Service—could be secured by desirable families, provided that surveys show that a reasonable amount of water could be had for irrigation.

ALFALFA.

This crop is quite extensively grown in the State, and is the best all round feed that we have. Steers are driven in or unloaded from the cars and finished for market on alfalfa fed in open yards direct from the stack.

Farm horses will do their work for a portion of the year when fed on alfalfa, with little or no grain. Some liverymen claim that their horses do well on this feed if they do the driving, but with the general public to do the driving, the results are not good.

Thousands of lands are pastured on the third crop and finished for market. Blue grass is one of our best for pasture, and the grasses with a few weeds form the pasture on the range, but for the valleys and the quantity crop, we must depend on alfalfa. Two crops, in Western Nevada, are cut per year, giving about 3½ tons per acre. An occasional farmer claims 4 to 8 tons per acre.

In twelve years past, the price has ranged from \$4.75 to \$8 per ton in the stack. Single loads delivered in town have sold from \$10 to \$14 per ton. What is locally called grass or upland hay is raised in several valleys, and is fed at the stock-yards.

GRAIN.

Grain-growing is an important farming factor in some sections of the State. Lovelock is credited with five machines that cut, thresh and sack the grain.

Wheat yields from 35 to 55 bushels per acre with farmers.

The Station farm has grown 67 bushels per acre. There is a market for more grain than what we are raising. One firm in this State, in the past year, has shipped in over 2,600 tons of wheat and barley, although one valley supplied about 200 tons of barley. Wheat for seven years past has averaged \$1.31 per hundred pounds, at Reno.

Wheat that is fall sown will head the latter part of the following May. In sowing White Australian that has been cleaned and screened, 75 pounds per acre is ample seed if sown with a drill; 30 pounds per acre has produced a crop of 1,900 pounds, and in one case 3,000 pounds per acre. With fall sowing, three to four irrigations will produce a very fair crop.

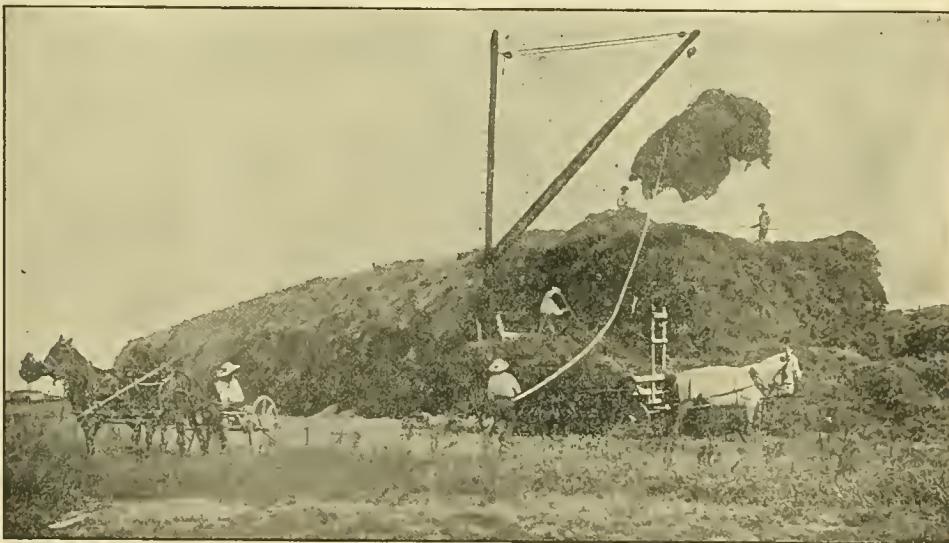
POTATOES.

In local language often called "spuds," are quite extensively grown in several counties, some farmers harvesting from 75 to 300 tons.

The Early Rose and Burbank have been leading varieties, although in the past few years some additions have been made to the list.

The yield is from $7\frac{1}{2}$ to $11\frac{1}{2}$ tons per acre—land measured and the potatoes weighed. Farmers usually report the yield at 9 to 12 tons per acre. One farmer reports having raised 26 tons on an acre. In twelve years past, the price has varied from \$8 to \$35 per ton, with an average of about \$18. The home market takes a portion of the crop, and large quantities are sold in Sacramento, and are always in demand in San Francisco, as well as onions, and are con-

sidered superior to all others raised on the Pacific Coast, and are valued highly for good shipping quality, especially to the Hawaiian Islands. Nevada could easily raise all its own food products and thus retain the millions that yearly go East and West for this purpose. Its onions, potatoes, turnips and beets are not only of immense size, but of excellent flavor. Its apples are the equal in flavor, size, color



HAY-STACKING IN ALFALFA FIELDS

and shipping quality to the best apples raised in Oregon, Michigan and New York. Nine apples at the Chamber of Commerce measured 37 inches when placed side by side, and are the same as those that took first premiums at New Orleans in 1885 and 1886 and in Chicago in 1893.

In addition to alfalfa and other standard products previously mentioned, there are a few others not extensively grown and yet do well with reasonable care.

Hops do fairly well, producing 500 pounds, dried, per acre, the first season after planting. For a moderate-sized yard the low trellis does good service; the large yards of the Coast use the high trellis. This crop fluctuates much in price, at times one dollar per pound, and at other seasons, seven cents or less. Flint, of Sacramento, who has grown the crop since 1862, is one of the best authorities on hop culture.

Tobacco can be brought to the ripening stage without difficulty; and even cured without a special house, was pronounced by the users as all right. The best way for farmers to use tobacco is to let it entirely alone. It costs a small fortune in thirty-five years, and he has nothing to show for the investment but unsteady nerves.

Peanuts are as readily grown as cucumbers, and make fair crop in quantity and quality. Canada field peas can be drilled with a two-horse grain drill, cut with a mowing machine, and threshed with the ordinary steam grain thresher. One hundred to 120 pounds per acre is about right for seed,—yield per acre, 2,700 pounds; 145 pounds of peas and 35 pounds of oats mixed in, and cut when the pods begin to form, make a partial substitute for hay.

Some of our citizens are making a specialty of raising poultry, and are making it very profitable.

IRRIGATION.

The only guarding the farmer needs to do regarding this topic is to have water rights certain and not use too much water. Use timely cultivation, make the best use of farm fertilizers, and keep the weeds out. —

Are found to a limited extent at home and the larger ones in Sacramento, San Francisco, and, in some cases, Denver and Chicago.

One firm in the State imported over 2,600 tons of grain in the past year. For those interested in grain raising, here is an opportunity to increase sales. The large capital invested by the Southern Pacific in the past two years in track improvement and the erection of first-class shops and roundhouse in Nevada, the new railroad being built, and the increased mining activity in the southern part of the State, all mean a larger population, more traffic, and consequent heavier demand for the products of the farm or orchard.

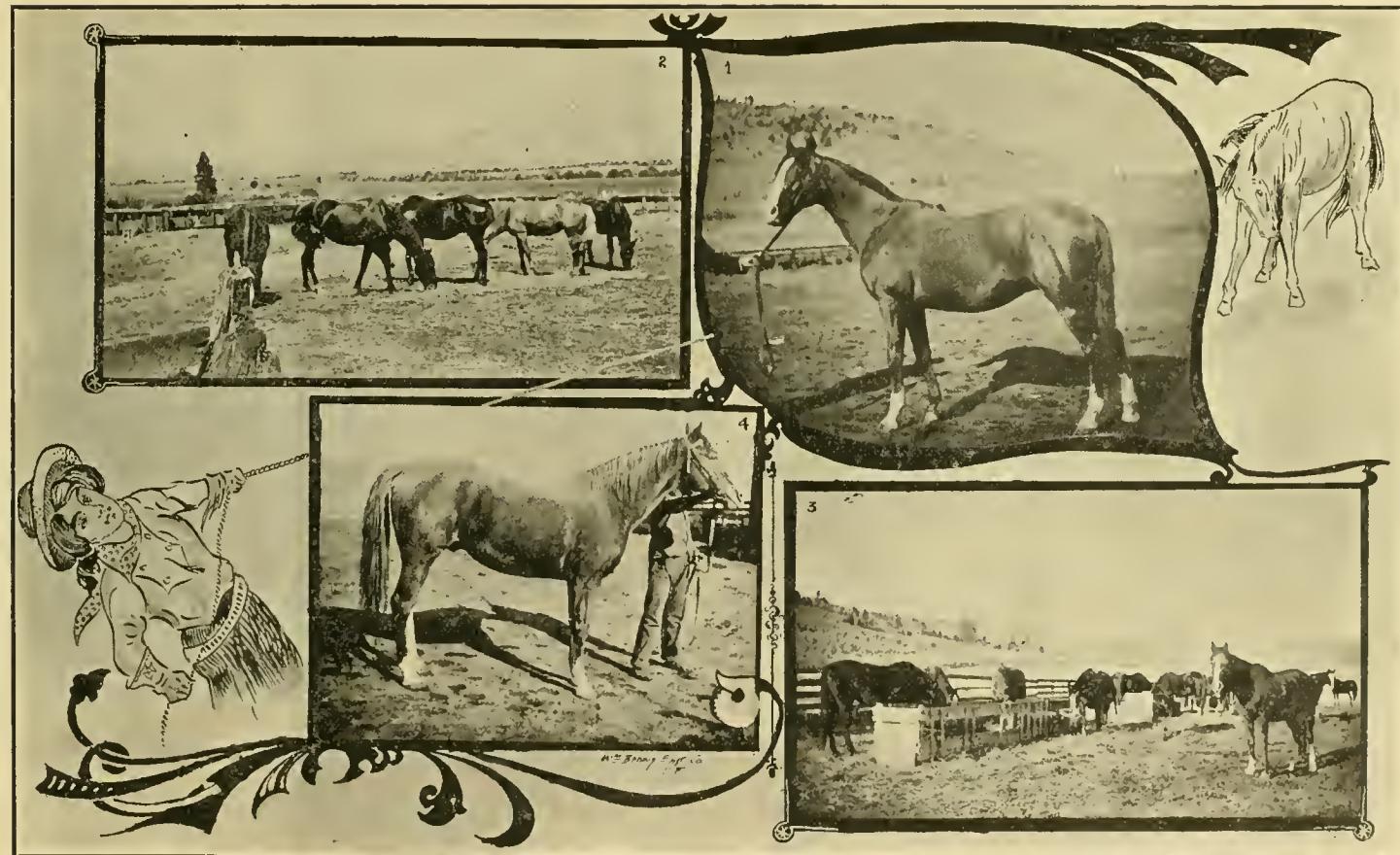
One railroad of Reno annually ships in tons of the different varieties of fruit; pork products for years have come to Reno in car lots; poultry by the earload passes weekly through this city to the Coast.

Perhaps some Nevada man can enlarge his output of the above articles and make the other fellow divide profits.

DAIRYING.

If a dairy is to be conducted with one word, use "cleanliness." Use "quiet," if a second word is added; with the profitable results certain to follow from the use of these words as a guide, we can be sure of system which will include "on time." The greatest profit comes with furnishing pure dairy goods,—either milk, cream, or butter. Leading men of this country have said, "I go to such a hotel because the purity of the milk is certain, and the food in general is the best to be had." In starting a dairy, first-class cows in every respect should be selected and tested by an expert, to make it certain that as regards health, there can be no criticism.

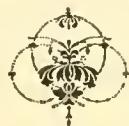
Put up the butter or cream in convenient and tasty packages,—the extra sales will make it pay.



SCENES ON WINTERS' RANCHO, NEAR CARSON CITY

This farm industry has not been extensively taken up in Nevada; several dairy plants that have started and apparently carried on a thriving business for a time have been closed. The factors of feed, pasture, good mountain water and a desirable temperature we have in abundance. With high-grade dairy products and this grade to a certainty, we have a home market, and can rely on Sacramento, San Francisco, and probably, within certain limits, on cities east of here. But to have even a portion of the sales in the above cities, the goods must be above honest criticism. It is a kind of work that emphatically needs the right man in the right place. We have several dairies in the State that continue to do a good business. One of these especially has a large call for its products in several counties of California. There is money in it to the right man.

To the man of moderate means who comes to the new lands opened to farming by irrigation, life for the first five years will be real. The mountain scenery, trout stream (we have both) side of the question presented by bureaus of information will be to him rather of a side issue that will produce but little tangible revenue. The man who comes with a practical knowledge of farm and garden work, who has gone over the ground in advance, or has trusted some conservative friend to do so, who has given the subject candid and continued thought, will, in a term of years, win a home and a fair competence. In several counties good land can be secured,—aside from this, the right to a definite amount of water suitable for the needs of irrigation should be a matter of record from competent and recognized authority.



Horticulture.

Ross LEWERS.

FRUIT culture in Nevada has so far received very little attention, but the very excellent results obtained wherever it has been tried should warrant a much greater production of fruit. The principal reasons why more fruit has not been grown are, want of a market at home, owing to our small population, and high rates for transportation to outside markets. But both these preventing causes are likely to be removed, as large areas of land are about to be brought under cultivation by the government irrigation system, which will more than double our population; besides, the mining outlook of our State never was as bright as it is now, and the transportation companies show a disposition to treat us more liberally than formerly, so I think it is safe to predict that in the near future a great deal more fruit will be planted, and more people will have an opportunity to enjoy Nevada fruit. Nevada apples have proven their great excellence when brought into competition with the best of all the other States at New Orleans and at Chicago.

The beautiful color of fruit here must be owing to the high altitude (from 3,000 to over 5,000 feet), and clear, cloudless days, sometimes warm in the daytime but always cool at night, and perhaps also to an abundant supply of iron and potash in the soil. The only apples I have ever seen that compare favorably with those of Nevada were grown in Idaho and in the Hood River Valley in Oregon, where similar climatic conditions prevail and perhaps a similarity of soil.

Fungous diseases do not thrive in this dry climate. The only injurious pests we have are the woolly aphid and codling-moth. The former is being eliminated by lady-bugs, and the latter can be kept under control by close attention to

bands which form a protection to a beetle that eats the larvæ of the codling-moth. The San Jose scale has made its appearance in a few places here, but a spray of lime, salt and sulphur will keep it from doing much harm until its own particular enemy multiplies as it did in California.



BOUGH OF APPLE TREE FROM ORCHARD
OF ROSS LEWERS, NEAR FRANKTOWN

western section, but a transcontinental railroad now building through the southern part of the State will soon give access to the markets of the world.

Strawberries, raspberries, loganberries, blackberries and currants are a decided success here. Also cherries, plums and pears do well and are free from all diseases, and in favorable location peaches are a reasonably sure crop. All these fruits have a remarkably high color and a rich, fruity flavor.

In the southern part of our State, in Lincoln County, almost semi-tropical conditions exist. There are planted and in bearing, grapes, almonds, figs, olives, and even some African dates. Oranges and lemons, I believe, have not been tried there, but no doubt they would do well. This part of the State has been even more retarded in fruit development by want of a market than the north-

Bee Industry, Nevada's Sweetness.

JOHN EDWARDS BRAY.

THE honey industry of Nevada is not the least of her business enterprises and resources, though yet in its infancy. Experts have placed the quality of Nevada honey in the foremost rank at the many great exhibitions held throughout the country in the past ten or twelve years. As yet Nevada's resources for the production of honey have scarcely been tapped, and when they are once realized and developed, Nevada will surely become the foremost honey-producing section on the American continent. Bee men are just beginning to realize that our climate has superior advantages for bee culture and fine honey production on a large scale. Our dry atmosphere and abundant supply of moisture by irrigation,—the latter condition being certain of wide extension in the immediate future under the vast irrigation projects and works of the United States government,—supply precedent conditions of a most important nature. Nevada's list of honey-producing plants is very extensive; in fact, nearly every known variety of wild flower found in the United States, which has value to the apiculturist, can be found growing on our hill and mountain sides and in many fertile valleys. But the chief source of our honey is alfalfa, the king of forage plants, which here reaches perfection in growth,—in the immense size of plant and blossoms and in the quantity and quality of nectar secreted. From spring until fall this luxuriant plant can be found under our system of irrigation and frequent harvesting of crops in almost continuous blossom.

During this long period of bloom, a practically rainless period, the surplus honey is gathered. This honey has a flavor distinctly its own, being very much superior, as experts tell us, to the famous sage honey produced in the mountainous

regions of California. Samples of both the comb and extracted product were exhibited by Mr. L. D. Flory.* At the National Bee-keepers Convention, held in Los Angeles, California, in the month of August, 1903, it was said by all present to be the finest on exhibition, it being in competition with the produce of nearly every important honey-producing section in the Union. The past two seasons, 1902 and 1903, have witnessed an immense increase in the number of colonies operated, the increase being more perceptible east of Reno, in the vast alfalfa fields of Washoe, Churchill, Humboldt and Elko Counties. This has been due largely to the importation of bees from Southern California.

In further illustration of the quality of Nevada honey, it might be well to add that it took the first premium at the World's Fairs at New Orleans and at Chicago; at the Mechanics' Fair in San Francisco; also at State Fairs in Ohio, Michigan and Indiana. Black honey, so frequently found in many sections, is rarely seen in Nevada. As to the quantity made, our bee-men report the average about one hundred to one hundred and fifty pounds per swarm. Mr. J. M. Fulton, district passenger agent for Nevada of the Southern Pacific Railway, informed the writer that about twenty-five carloads of honey were shipped out of Nevada last year which, taken with the home consumption, would indicate that our product, in 1903, was more than one million pounds—a pretty good record for

a new industry in Nevada. The reputation of Nevada honey for superiority has reached England and France, and within the past year large orders were received from those countries.

It is not possible within the limits of this article to refer individually to all the different bee-men who have become prominent in this industry in Nevada. However, as we have been furnished with cuts of one of the many large plants in the State, it has been thought proper to present these to the readers of this pamphlet, together with some interesting



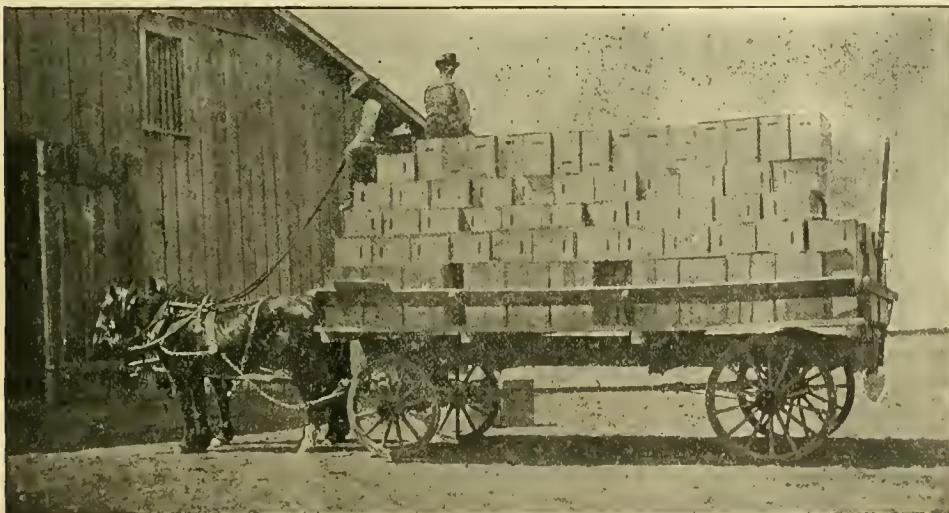
NEVADA APIARY

facts in connection therewith, as typical of our various bee plants. Messrs. Thorn and Ercanbrack, whose apiary is represented in the accompanying cuts, have three hundred or more colonies in their plant near Lovelock, Humboldt County, Nevada. The business is run on a scientific basis,

* Mr. Flory, who furnished much of the material for this article, is one of the far-seeing bee-men who in the past ten years have left California and come over to Nevada, locating near Yerington, in Lyon County, where he has built up a very fine apiary, from which he is reaping a rich reward,

and all the honey is extracted from the comb before being marketed. Alfalfa fields are the feeding grounds of the bees, and they thrive wonderfully well. The cuts show the location of the colonies in a grove of tall cotton trees, and a dray-load of extracted honey in cans on its way to the storehouse or cars.

Proper legislation for the protection of the bees against disease, and a general co-operation on the part of those engaged in the business, will be essential as this industry is extended, and it is to be hoped that the State authorities will give the business the attention it warrants and foster



HONEY READY FOR MARKET

this growing industry of the State of Nevada. These results, it is believed, will soon be forthcoming, and then Nevada will stand in its bee industry second to no State in the Union.

The Sugar-Beet in Nevada.

PROF. N. E. WILSON.

FOR eight successive seasons, from 1891 to 1899, the Nevada Experiment Station conducted a series of exhaustive experiments with the sugar-beet, with the object in view of ascertaining whether the conditions of soil and climate prevailing in Nevada are suited to the culture of beets containing sufficient sucrose to be of use commercially in the manufacture of sugar. A large portion of the State—in fact, all of the northern and western parts—lies within the thermal area suitable to beet culture. Within this area, also, is to be found a major portion of the agricultural lands of the State; and it was to these areas that our investigations were confined. The first season's work went far to show what could be done, although the minute details of practical cultivation as applied to the thoroughbred beet were by no means well understood at the time, and it was a very difficult matter to get the ranchers who were co-operating with the station to understand that the beet for sugar production is not that of great size and weight like the prize pumpkin at the county fair. Each season's experience, however, brought improvements in these matters, and the results of each succeeding season were more gratifying than those of the preceding.

The records of the eighth year's work all point to the fact that sugar-beets of high sugar content and purity can

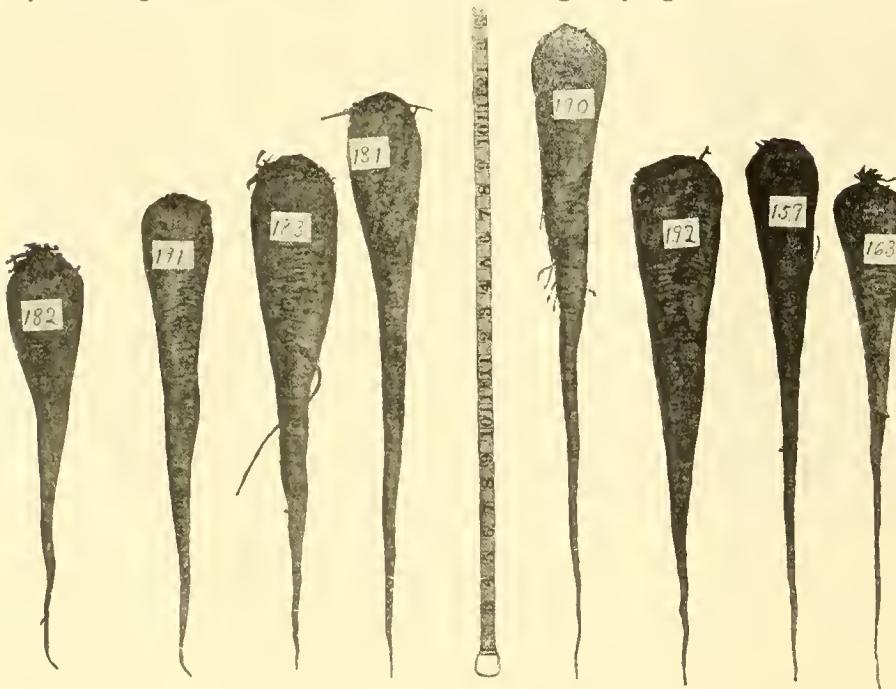
be grown here; and not alone this, but that they can be grown in quantities amply sufficient for a factory supply. In fact there are several sections in the State, each of which could supply a factory for a long campaign. This is especially true of the Lovelock Valley in Humboldt County, where 20,000 acres of land in a single body, perfectly adapted to the growth of the beet, occur. The soils of Nevada are exceptionally strong in the elements of plant food necessary for beet growth. This, together with the almost cloudless sky and bright sunshine—and with the use of good judgment

we can have the best of facilities for supplying water, in the quantities needed for irrigation—makes this State an ideal section for the beet production.

It was formerly taught that beets could not be produced under the irrigation system, but experience has shown that beets can be brought to a high state of perfection under the system. This is not only clearly demonstrated by the cultural experiments in this State, but also by the practical work of the factories at Lehi, Utah, and in the Pecos Valley in New Mexico, and is but an instance where theory and practise do not go hand in hand.

The locality giving the best results we have found to be the Lovelock Valley. The soil of this valley is peculiarly rich and fertile, and has been formed by the growth and decay of tules, which have been covered by sediment, thus forming alternate layer after layer of decayed tules and sedimentary silt to a great depth. This valley contains at least 100,000 acres of good beet land, and from 20,000 to 30,000 acres could undoubtedly be secured for beet-growing in the advent of a factory for the manufacture of the product.

Carson Valley, in Douglas County, has a soil quite well adapted to beet culture, but not so well adapted as that of the Lovelock Valley, nor is it as easily worked, and is more gravelly and stony. Water facilities in this valley are good and lime rock can be obtained, but the fuel problem would figure a little more on account of transportation by team for some distance. The results from this section are not as promising as those of the Lovelock Valley, yet are above the average.



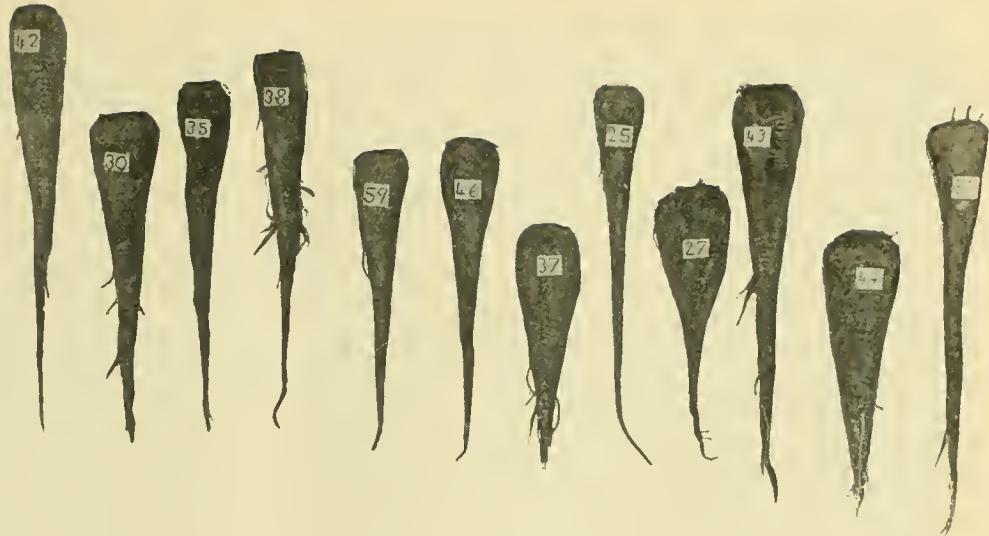
In Mason Valley, situated mostly in Lyon County, but extending for a few miles into Esmeralda, the experiments have been very satisfactory. The soil is alluvial and very fertile, and a large acreage is available for beet production should the circumstances warrant.

The Truckee Meadows, in the Truckee Valley, Washoe County, have given good returns. The soil is hardly of the best type for beet growing on account of a large amount of coarse gravel contained in it, nevertheless, good beets grow there, and a tonnage of fifteen to the acre has been produced.

In the north end of Ruby Valley in South Elko County, the soil is a rich black loam which has washed from the surrounding mountains and has been found to be a strong wheat-producing soil. The experiments conducted on this soil show it to be a good beet producer. Other conditions are favorable, except fuel. The district is too far from the railroad to get coal at such prices as would enable a factory to use it, but an abundance of mountain mahogany would be available.

The Battle Mountain district in Humboldt County possesses a strong soil which is easily worked. The facilities for water, lime rock and fuel are about the same as in the Lovelock Valley. The soil of this vicinity in all probability carries a little too much alkali for the best results, but it is in such form and the topography of the country is such that the excess could be easily drained off.

The average of all samples analyzed during the season



is as follows: Number of samples, 183. Per cent of sucrose in juice, 17.05; per cent of sucrose in the beet, 16.20; purity, 84.68. This average includes those beets which were grown without any cultivation or care whatever, and which in one case ran as low as 7.4 in sugar content. This being the case, it is readily seen that with proper care of the beets in all cases our average of sugar content would be very high.

The cuts published herewith are of types of beets raised in the Lovelock Valley by Mr. John Harrison. They are but a good average of the crop from about twenty acres, which gave by very careful measurements, 24 tons of trimmed beets per acre.

The Mining Industry.

W. T. MORAN.

U. S. Dept. Min. Sur.; Resident Surveyor Comstock Lode,
Virginia City, Nevada.

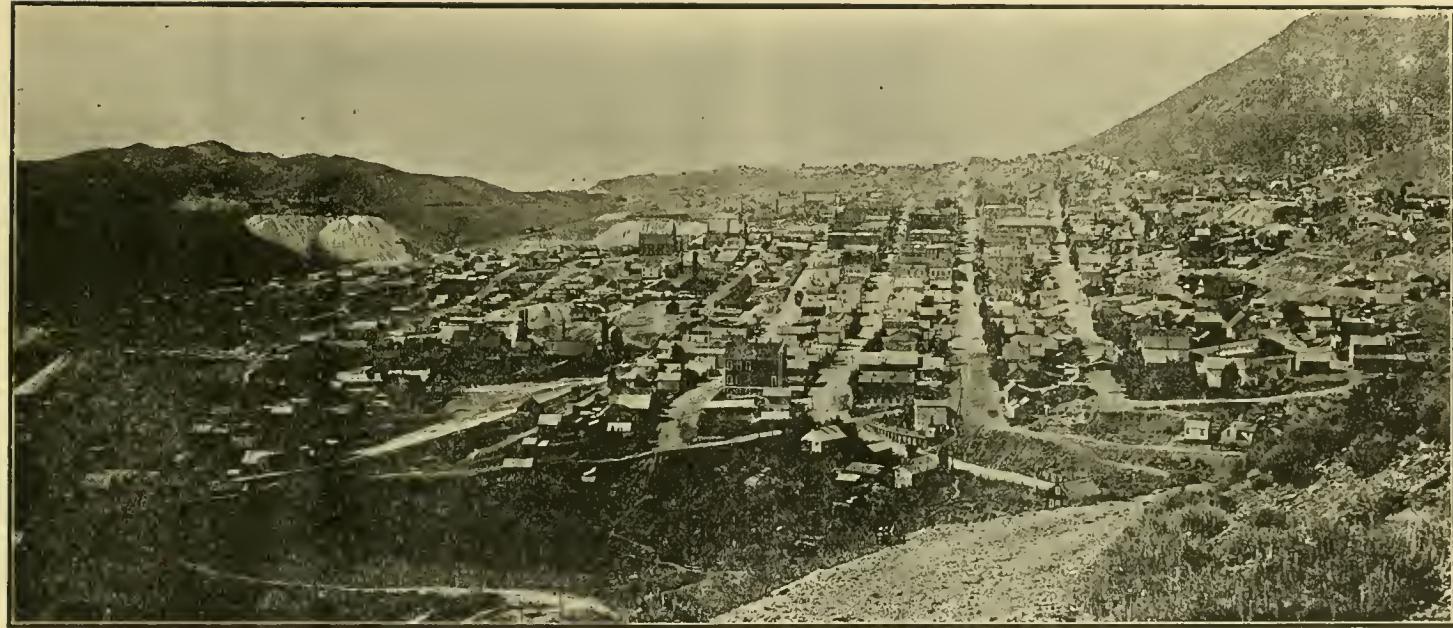
IT being impossible within a brief space to give an exhaustive description of the mining industry of Nevada, the writer must therefore content himself with making a few statements regarding the mining in the past and present within the State, and offering a few facts to prove the statement which has often been made,—viz., that the mining and prospecting already done has merely been scratching. When a good map of Nevada is examined, it will be noticed that the topography consists of not less than 60 distinct ranges of mountains, all of which have been named, besides many more lesser chains and isolated peaks, divided from one another by valleys more or less fertile. These ranges vary from 10 to 50 miles in length, and gold and silver in greater or less quantities is found on every one of them. The mountain ranges run nearly north and south, but in some cases the mineral belts run east and west; one in particular, in Elko County, extending east and west, is nearly 40 miles wide, and 130 miles in length; gold in placers and ledges has been found in paying quantities throughout its entire length. The area of Nevada is 71,000,000 acres, mostly mountainous. We will proceed to show what has been done in the few known camps. We can form some opinion of the future possibilities of the State. Every day new discoveries are being made. No one ever heard of Tonopah until late in 1900, nor of Goldfield until two years later. It is therefore reasonable to suppose that many more equally as rich and productive districts will be discovered from time to time when the ubiquitous prospector reaches them. It is not to be supposed, however, that no prospecting has been

done along these ranges; they have all been more or less traversed by eager seekers after gold and silver, but various causes led to many promising ledges and placers being abandoned for the time being; among these causes may be mentioned inaccessibility, scarcity of water, lack of transporting facilities, lack of funds, etc. We will now proceed to show what has been done in the different Counties, taking them in alphabetical order.

CHURCHILL COUNTY.—The gold discoveries in this county are phenomenally rich, and several extensive copper mines are turning out and shipping matte. In the eastern part of the county are several high ranges of mountains, notably, Carson Sink, Augusta and Sinkavata Mountains. These mountains, like all others in Nevada, are seamed with ledges, carrying gold and other precious metals. Many rich veins of gold and silver have been discovered, and have turned out a large amount of bullion. Most of the discoveries are of recent date, and give promise of becoming bonanzas.

DOUGLAS COUNTY.—Is generally mountainous, with rugged high peaks. The Pine Nut Mountains in the eastern part of the county are seamed with ledges of quartz, rich with precious metals. There are also rich placer mines, which have been worked profitably in a small way, the scarcity of water preventing more extensive operations. In the southern part, gold mines have been worked for many years very profitably.

ELKO COUNTY.—This county contains 10,972,000 acres of land, or over one-seventh of the entire State of Nevada. Its length is 155 miles and width 129 miles. It is not considered a leading mining county, but the net proceeds of its mines hold a respectable relation to the net proceeds of the mines of the State. The mountains cover one-half the area of the county, and are from 8,000 to 12,000 feet high. These mountains are rich in minerals, but were never thoroughly prospected. Tuscarora, the leading mining camp of the



BIRD'S-EYE VIEW OF VIRGINIA CITY

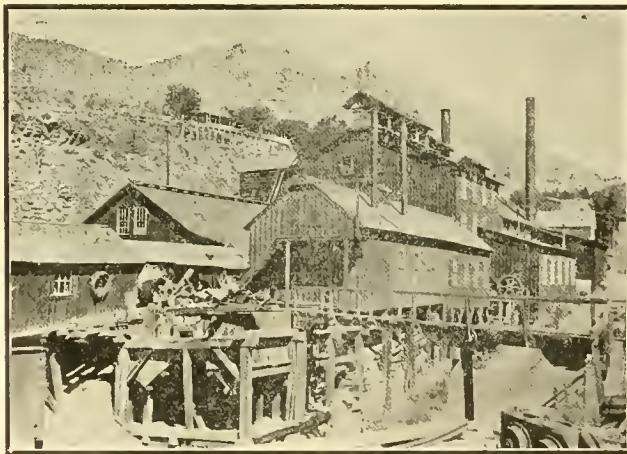
county, was one of the first discovered, and has been worked continuously since. The placer mines there discovered are also being worked. Afterwards silver ledges were developed, and have turned out \$10,000,000 worth of silver. Since the advancement of gold in value, the gold ledges in the district have been opened up, and are now being profitably worked.

ESMERALDA COUNTY.—The mines of Esmeralda principally produced silver, but since the decline in the value of that metal, gold production has received more attention, and many rich ledges have been opened up. The principal dis-

tricts in this county are Aurora, Pine Grove, Hawthorne, Palmetto, Silver Peak, Candelaria, Silver Star, Tule Canon, Montezuma and Cambridge. These camps have produced not less than \$20,000,000. In the county is also situated the new camp of Goldfield and a part of the camp of Tonopah. A few words about the Goldfield District will not be out of place here. Scarcely two years old, it has developed into a very promising camp, and bids fair to rival its sister camp, Tonopah, from which it is distant 26 miles. The principal mines are Jumbo, surface average \$275 per ton, at 50 feet

average \$1,467, Combination (ore goes \$200 to \$400 in gold), the January and Florence.

EUREKA COUNTY.—Eureka District was discovered in 1864. This district ranks second only to the world-famous Comstock in Storey County. The mines have produced \$125,000,000, and only a few ledges known to exist in this district have been worked, and very little deep mining has been done. In this camp, as in many others, the cyanide process of treating ore and tailings has caused a great revival, and worked a wonderful transformation. Lead is largely produced from the mines of Eureka District. Iron is found in abundance, and near Palisade in the northern part of the county is a



YELLOW JACKET GOLD AND SILVER MINING COMPANY.
GOLD HILL, W. E. SHARON, SUPT.

large deposit of magnetic iron ore now being worked. The mining camps are Eureka, Cortez, Mineral Hill and Safford.

LANDER COUNTY.—Silver and gold were first discov-

ered in 1862, and since then mining has been the principal industry of the county. The most important mining districts of this county are Austin, Galena, Lewis, Bullion, Pittsburgh, Kingston, Marysville, New Pass and Yankee Blade. Good prospects have been found in every mountain range in the county, and throughout the county are many rich un-



OVERMAN SILVER MINING COMPANY, GOLD HILL, W. E. SHARON, SUPT.

developed prospects of gold and silver. About twelve miles southward from Austin, in the Toiyabe Mountains, are the Big Creek Antimony Mines, which with similar ones in Humboldt and Churchill Counties enjoy the distinction of being the richest mines of this metal in the world. The ledge is very wide, and about two miles of its length has been traced. Lander County has produced over \$36,000,000 worth of precious metals.

LINCOLN COUNTY.—Contains 19,000 square miles or nearly 12,250,000 acres. It was organized in 1866, and has produced \$30,000,000 in gold, silver, lead and copper. Hundreds of millions remain to be extracted, as in fact mountains

of mineral lie practically untouched in this county. Other metals besides gold, silver, copper and lead exist in large quantities in this county. In the Raymond and Ely Mine alone over \$5,000,000 worth of zinc exists which could be extracted with profit were transportation cheap.

LYON COUNTY.—In this county is situated Silver City, one of the richest mining districts in Nevada. Many millions in gold and silver have been taken out, and at present all or nearly all the mining claims are being worked with more or less profit. Here, too, cyaniding has worked wonders, and is being carried on on a large scale. The mines in this dis-

trict carry a very large proportion of gold. The great drawback to mining in this district is the presence of water within 100 feet of the surface preventing deep mining. This obstacle will be removed when the system of drainage contemplated and now being constructed is completed. In the central and southern parts of this county promising gold and silver quartz ledges have been found, notably at Como. In the eastern part many copper mines are being worked at a profit.

NYE COUNTY.—Many rich mines of gold and silver have been discovered in this county, and have yielded an enormous amount of bullion, but as in other portions of the



HOISTING WORKS OF THE CONSOLIDATED VIRGINIA AND CALIFORNIA MINING COMPANY, VIRGINIA CITY

State, the transportation facilities are almost absent, and consequently retard the development of the county. When more railroads come, all this will be changed, and it will be profitable to work low-grade ores. A railroad has recently been built from Sodaville to Tonopah which has given cheap transportation, and opened up a vast territory containing many rich mining camps.

A few words about Tonopah will show that the State is practically unexplored and unprospected. Four years ago, or in 1900, James Butler discovered Tonopah, and at present writing there are over 4,000 people in the camp. From its discovery up to the last day of December, 1901, \$4,500,000 was produced. The mineral zone is 7,000 feet long by 5,000 feet wide. Besides gold and silver, copper, lead, antimony, zinc and quicksilver have been found in quantity in this county, also gypsum, fireclay, chalk, soapstone, borax and alum.

ORMSBY COUNTY.—There is little or no mining being carried on in this county, but many of the wealthy mine owners of the State have their residences in Carson, the capital, which is a beautiful and attractive city.

STOREY COUNTY.—This is essentially a mining county, and has produced the greater part of the gold and silver that has been taken out of the State. No group of mines in the world have taken out more. The amount is \$600,000,000. It is the only place in the State where deep mining has been carried on to any extent. The workings are down 3,200 feet and some of the most expensive pumping and hoisting machinery in the world are in operation in the mines of the Comstock. These mines are as modern and up to date in their equipment and operations as any in the world, and the use of electricity for airing and lighting the mines is almost universal. Electricity is also used for hoisting in some of the mines, and for pumping in the C. & C. Shaft of the Con. Cal. & Val. Mine. The entire mine is lighted by electricity, 250 16 candle-power lamps being used in the drifts, stopes and cross-cuts, as well as at the different stations. Electricity is

also used to compress air to drive the drills and to run the fans used in keeping the mine cool. Previous to the introduction of electricity into the camp the cost per horse-power was \$20.00; this has been reduced to \$7.00.

WASHOE COUNTY.—The leading industries of this county are agriculture and manufacturing, but recently wonderful discoveries have been made of almost fabulously rich mineral deposits, notably at the Wedekind Mine, near Reno, where in apparently unproductive rock, values as high as \$700 per ton have been found, and extensive bodies of very rich rock have been blocked out in the various mines on the Wedekind Lode. Gold and silver have been universally mined in various other parts of this county, which contains also rich veins of copper, iron, sulphur, borax; salt and soda are to be found in large deposits north of Pyramid Lake. There are mines of quicksilver also in this county.

WHITE PINE COUNTY.—Some of the richest silver mines in the State exist in this county, and were universally and profitably worked up to the time when silver declined in value. Lately many rich discoveries of gold have been made and new ones are being constantly found. The principal mining districts are Hamilton, Ely, Eberhardt, Treasure City, Mineral City and Osceola. At Osceola extensive placer mines are being worked by hydraulic process, and annually yield a large amount of gold.

SUMMARY.—Nevada is one of the richest States. It is no longer a silver State only. Employment can be found for more men in mining for gold than silver mining afforded in the past, and a greater output of wealth can be returned every year. The Comstock ore is about 45% gold. Eureka ore carries about 30% gold. Lincoln County ore is mostly gold. Esmeralda ore, except at Candelaria, is all gold. Silver Peak has a gold ledge 45 feet wide and miles in length. Pine Grove Ledge in Esmeralda has produced \$2,000,000 in gold; it is 200 feet wide and is traceable for miles, and is practically untouched. Hawthorne is also a gold-bearing district.



JOHN W. MACKAY

U.S. GRANT, JR.

GEN. U. S. GRANT

EX-GOV. J. H. KINKEAD

JAMES G. FAIR

MRS. D. GILLETTE

MRS. U. S. GRANT

MRS. JAS. G. FAIR

JAPANESE SERVANT, KNEELING

General U. S. Grant and party's visit to the Consolidated California and Virginia Mines, Virginia City, Nevada, upon return from a tour around the world—1881

Sulphur Mining in Nevada.

THIRTY years ago, while roaming over the Kamma Mountains, a Piute Indian found little mounds of yellow stuff that had been brought to the surface of the earth by the badgers that had their haunts in that district. Indian George brought some of these yellow particles to Humboldt, then, as now, a thriving little eating station on the line of the Central Pacific Railroad.

This mineral, unknown to the Indian, but well known to two prospectors who were then at Humboldt, excited their interest, and George was promised a broncho, a saddle and blankets if he would direct the prospectors to the spot where he found this strange-looking yellow rock. This the Indian did.

The prospectors then and there located the ground, posted their notices, did their discovery work and formed a mining partnership under their names of Feely & Nord.

It was not long before the partners disagreed, and quarrel followed quarrel. One hot July afternoon a furious fight took place between them, and the partnership heretofore known to exist between Feely & Nord was dissolved. Feely lay dead over a pile of sulphur ore, with a red streak trickling from somewhere underneath his blue cotton shirt.

The law of Humboldt County pursued Nord. He was tried for his life at Winnemucca, and the judge's sentence, "To be hanged by the neck until dead," closes the simple chapter of the discovery and location of the sulphur mines of Humboldt County, now the largest in the United States.

For long years the property was abandoned and the ghost of Feely was monarch and his power supreme. But of late years the property again received the attention of mining men. After years of idleness, many vicissitudes, changes of ownership and losses amounting to thousands

upon thousands of dollars by those who undertook to work the property, it attracted the attention of Mr. Isadore Zellerbach, one of the most successful business men of the city of San Francisco.

In August, 1899, Mr. Zellerbach bought the property.



EXHIBIT AT ST. LOUIS EXPOSITION

He organized the Nevada Sulphur Company, with himself as president and Mr. Louis Bloch secretary and general manager. Mr. Marcus M. Baruh was placed in charge of the mining operations, and under this able management the property has been placed on a dividend-paying basis, and

today ranks as one of the foremost mining enterprises in the State of Nevada.

The mines are located thirty-five miles northwest of Humboldt, in Humboldt County, Nev., on the western slope of the Kamma Range, a low chain of hills of volcanic origin rising out of the desert, and bounded on the west by a wide expanse of almost perfectly level alkali flats known as the Quinn River and Black Rock Deserts.

The country rock of the sulphur deposits is of uniform character and great extent. It consists of an immense quantity of light and dark grey tufa conglomerate, formed of volcanic ashes and fragments of volcanic rocks, which, in some instances, are only partly cemented.

The sulphur ore is found in immense blanket formations, thousands of feet in area. It is mostly mined underground through tunnels, but in some instances is found near the surface, and is then worked in open pits and the ore quarried.

The ore is hauled to the refinery and deposited in cast-iron retorts holding about two and one-half tons.

A recent analysis of the sulphur produced by the Nevada Sulphur Company, made at the University of California, at Berkeley, Cal., showed 99.81 per cent pure sulphur, and contained absolutely no deleterious matter. It is equal to sublimed sulphur for all purposes, and has supplanted that article throughout the Pacific Slope.

The mine and refinery are operated the entire year, the company employing thirty-five men in and around their works. They own 1,600 acres of sulphur-bearing ground and have thousands of tons of ore exposed—a guarantee that the mine has many years of a profitable life before it.

The company has made a meritorious exhibit of their ores and products at the St. Louis Exposition, in the Mining Department of the State of Nevada.

Approved by: PRES. O. A. DOCKHAM,
Secretary Chamber of Commerce.

WILLIAM E. SHARON, the subject of this sketch, was born in Ohio, in the year 1852. His early life was spent on a farm, and his education and training was of that character which fitted him for the active and practical side of life. His natural affability, quick perception and excellent judgment of human nature have been of great advantage to him in his busy life. He is not only generally popular, but among those who are more intimate with him, he is regarded with the highest of esteem.

In the year 1872, when comparatively a boy, Mr. Sharon came to Nevada, and has been a resident of the State continuously up to the present, and his judgment is that he will still be a resident thirty-two years from now if Providence is kind to him.

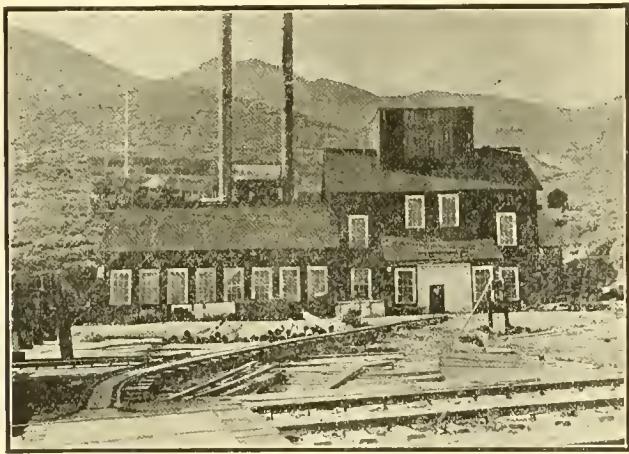
Upon arriving in Nevada, Mr. Sharon located at Virginia City, where he engaged in mining, gradually working himself up from a subordinate position to the superintendency of some of the most celebrated mines on the Comstock Lode among which are the Belcher, Crown Point, Yellow Jacket and Overman.

These mines have produced many millions of dollars, materially increasing the world's wealth and adding greatly to the prosperity of the western country.

Being an active, progressive and broad-minded man, Mr. Sharon has always been foremost in furthering the best interests of the State, and has become associated or directly connected with many of its best resources, hence he has considerably more than an ordinary interest in the future development of those resources. He is ever ready to listen to any plan for the betterment of conditions, or the broadening of opportunities for the upbuilding of Nevada, if such plans have merit, and none will enter into the spirit of the project more readily than he.

He is not a man that gives serious consideration to petty jealousies, class distinction or social standing. He meets all on the level, and always has a kind word for the man in overalls or broadcloth. Billy, or Will, as he is familiarly known all over the State, is at home in any part of Nevada.

In public affairs he has always taken a decided and active



BELCHER SILVER MINING COMPANY, GOLD HILL, W. E. SHARON, SUPT.

part, not a prejudiced one, but from a standpoint, as he viewed matters, for the benefit of the people, not the individual.

Mr. Sharon never has sought public office. He has, however, been mentioned at various times for Governor, Congress and other positions of honor and trust. He served his county (Storey) two sessions of the Legislature as State Senator, which position he filled with credit and honor. For the past twelve years Mr. Sharon has been prominent and energetic

in the fight for silver, fully believing that the remonetization of the white metal was of paramount importance to the State of Nevada as well as to the whole country. As chairman of the Silver Party State Central Committee, he has been very active and his work in this organization in the interest of the State and for the benefit of the taxpayers and people generally is now a matter of record.

"The New Nevada" is not a theory with Mr. Sharon, but a reality that is rapidly assuming shape and importance. His opportunities for securing information through associations with prominent men of capital and investors looking for chances for safe investment, convinces him that Nevada will soon rank as a leading western State, and mining will not, as in the past be her principal resource, for through the irrigation projects now in the course of development, she will take a front place as an agricultural State.

Mr. Sharon is associated as well as directly connected with some of Nevada's prominent interests, the value of which will be greatly increased through the policy of progress and development which is now at hand, and which he will aid in every way possible.

In this connection it may not be out of place to say that the fabulous wealth produced from the Comstock Lode is a matter of history, and there are possibilities yet to be accomplished which will eclipse the record of any former production and even cause the reputed riches of Aladdin or the wealth of Monte Cristo to pale into comparative insignificance. The superintendents of all of the Comstock mines are men of sterling character, and their long experience and practical knowledge of mining, together with the optimistic hopes which every good miner has, as a part of himself, make them capable of undertaking herculean tasks and carrying them through successfully, so at no distant day the unwatering of the lower levels of these great mines will cause a renewed activity on the Comstock Lode which will probably equal if not surpass the period when the "big bonanzas" were the wonder of the world.



The Living Witness of the Desert's Tragedy.

G. McM. Ross.

IN time to come, when New Nevada has reached a stage of development and repose, we can imagine her, when thinking of the loved ones she would honor or whose deeds she would commemorate, saying:

"I dreamed last night of a dome of beaten gold
To be a counter-glory to the Sun;
There shall the eagle blindly dash himself,
There the first beam shall strike, and there the moon
Shall aim all night, her argent archery;
And it shall be the tryst of sundered stars,
The haunt of dead and dreaming Solomon;
Shall send a light upon the lost in Hell,
And flashings upon faces without hope—
And I will think in gold and dream in silver,
Imagine in marble and in bronze concceive."

Within the limits of the shadow of such a dome, on a pedestal of silver, an eternal place has been earned by our four-footed friend whose picture heads the article and whose merit and worth have been belied or belittled by the poet who said: "A fellow feeling makes us wondrous kind," by the philosopher who said: "Spirit that lurks each form within, beckons to spirit of its kin," and by the general indifference to the important part he has played in the development of Nevada. With the exception of the Comstock, there is no mining camp in the State that does not owe its discovery, directly or indirectly, to the so-called vagaries of our friend, but in reality to his courage, patience, and ability to suffer the tortures of hunger and thirst that drive men mad.

In palatial homes in eastern cities, fair women are decorated with wondrous jewels whose marvelous beauty mocks the sunlight. The palace, the jewels, even the women, would not be so assembled but for the part played by the burro, in the discovery of Tonapah.

Other animals have been, and still are, worshipped for services to man less conspicuous than the carrier of a Saviour, or the only possible companion of the dauntless prospector of Nevada's deserts. It may be that to acquaint the world with the merits that have so long been hid by time and fate, is no small part of the mission of New Nevada, herself, representing in all past time, Mystery.

The Mining Aspect.

J. C. RALSTON, M. E.

THE relative magnitude of Nevada with respect to many other States is quite as striking as her other physical characteristics. Indeed, it is so impressive that one is surprised when seeing it set in juxtaposition to other perhaps better known territory. Thus, in point of area, Nevada is within less than one per cent the same size of the now defunct South African Republic. It is more than twice the size of the Orange Free State; the same size as Austria; more than half as large as the German Empire; larger than New Zealand, and within less than seven per cent the size of Great Britain and Ireland. Its area is a trifle greater than the aggregate of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New Jersey, West Virginia and Maryland. Japan, with her 43,000,000 inhabitants, is only one-third larger than Nevada with her 50,000 people. Here surely is an inglorious empire—a forgotten commonwealth.

With a territory so large and so completely impressed with the most favorable geological conditions, it must very properly engage the attention of the miner, now perhaps more than ever before. It was the cradle of quartz mining in the United States, and its pioneers in that industry carved out a record in production never equaled in the world. Its engineers achieved success in the face of apparently insurmountable obstacles and crystalized and perfected economic methods which became new criteria for the industry on all parts of the globe.

Later, there supervened years of depression. Many of the mines were abandoned; many were believed to be worked out; others were closed because the ores had become impoverished and would not yield a profit after paying reduction

charges which, in the light of modern practise, were excessive. Much of the capital was withdrawn from the State, and the money kings sought that congenial environment in social and commercial centers which wealth can always command.

The new and virile blood is being injected into the veins of the State, and a firm and intelligent hold is being taken upon her mining and industrial possibilities.

Supplementing territorial extent with other criteria equally as great invites still closer investigation. Nevada's position amongst the great mineral-producing States of this country and of the world is of the first magnitude. Colorado and California only outrank her in the production of gold and silver in the period embraced between 1866 and 1902, both inclusive. Of the eleven western mining States, within this period, the relative production has been derived from the States in the order named, and in the aggregate values, in round numbers, as follows:

1—Colorado, gold and silver	\$711,000,000
2—California, gold and silver.....	620,000,000
3—Nevada, gold and silver	504,000,000
4—Montana, gold and silver	424,000,000
5—Utah, gold and silver.....	208,000,000
6—IIdaho, gold and silver	167,000,000
7—South Dakota, gold and silver.....	116,000,000
8—Arizona, gold and silver	108,000,000
9—Oregon and Washington, gold and silver ..	76,000,000
10—New Mexico, gold and silver.....	46,000,000

In the year 1901, Nevada ranked eighth of the gold-producing States, and fifth of the 14 silver-producing States. In the same year, of the 44 gold-producing countries of the world, Nevada's position was twelfth, and of the 26 silver-producing countries of the world, Nevada stood eighth. In 1902 her position was even more flattering. Although only convalescing from a long period of suspended production, her position was eighth of the 19 gold-producing States, and fifth of the 21 in silver production. In the same year,

of the 22 countries of the world reported, her rank in production of gold was eleventh; in silver, seventh of 15 countries.

It is only recently that some of the captains of mining finances have again turned their attention to Nevada. The State is now feeling the thrill of renewed vigor. New and important mineral discoveries have lately been made, while old properties, particularly the Comstock, are being rejuvenated, and are again beginning to produce. Others, which were believed to have been worked out, are, as so often happens, again yielding merchantable ores.

Nevada, perhaps more than any other State, will become responsive to this latter condition. Many of the mines were worked in the days when reduction costs were much higher than they are today, and when the percentage of saving was lower. Those two rebellious facts alone have put limitations upon a large number of mines throughout the State. But they are no longer existent. The science of metallurgy has so far progressed, both in the saving of high percentages and in reduced cost of reduction, that ore bodies which a few years ago were not merchantable can be mined today at a good profit. This is peculiarly so in the semi-argentiferous mines.

Heretofore, in considering possible future conditions at depth, they had been correlated with, and measured by, the past bonanza conditions which existed in the days when the upper oxidized and enriched zones were working, with the result that too many properties were totally abandoned or turned over to the small leasers who of necessity could only gouge out the richer lenses near the surface, while the virgin horizons below water level were allowed to languish.

In many of the mining States in Mexico, old, abandoned mines have proved veritable bonanzas when properly worked. The writer recalls a number of properties in different parts of this State which lie idle today because of this fact. He believes that no small part of the future production will be derived from such mines, and that this is a phase of exploita-

tion which will profitably engage capital. Indeed, this proposition has been within the last few months undertaken in several conspicuous instances. At the same time, however, such a proposition cannot, of course, be laid down as a fundamental one in all instances, but a careful study of the individual cases will, it is sure, prove the wisdom of many a proposed rejuvenation.

The well-known camps of Tonopah and Goldfields which have produced bonanza values from the grass roots, promise to be not only great camps, but to become as well centers of large and diversified mining districts.

The western and southwestern tier of counties, comprising Washoe, Storey, Ormsby, Lyon, Douglas, Esmeralda, Nye and Lincoln, have perhaps been more fully prospected than other parts of the State, although the latter three have been but indifferently scratched. These counties comprise a strip of territory lying parallel to and all practically within one hundred miles or less of the Sierra Nevada Mountains.

This topographic fact is of special significance. Out of the eastern slope of these mountains a number of large perennial streams pour down into the Nevada plateau. These streams are susceptible of being harnessed, and their power converted into electric energy. One hundred, or even two hundred, miles are today in the light of recent practise not a prohibitive distance for the transmission of power. One such plant is already in operation furnishing power to a profitable market, while others are projected. Those counties, therefore, enjoy inherent potentialities of exceptional value which appeal profoundly to the miner, for they mean cheap power, a consequent reduction in the cost of mining and milling, increased profits and enlarged fields of productiveness.

Heretofore, cheap power has been regarded as rather a remote possibility, due more to the lack of cheap transportation and the absence of native fuel. The hydro-electric engineer has erased that embargo.

As for cheap transportation, the writer believes that that desideratum will be promptly and fully supplied from time to time as conditions demand, just as it has been in other States. A strong mining company always has it within its power to reach a solution of such a problem. The Southern Pacific Railway Company occupies the territory almost exclusively, and complaint of prohibitive tariffs is sometimes heard. But this is more theoretical than real. If there have been cases of hardship, they have perhaps been due more to the fact that that great system has been engrossed in ameliorating conditions in other more active territory. It is due, perhaps, not so much to a determination not to foster mining as to the fact that the railway company has been wholly engaged in meeting the demand of other industries elsewhere along its lines. To be sure, the northern and Colorado roads have been very active in fostering mining, but with them mining has been a larger producer of traffic. Many instances are recalled wherein the management has been prompt in meeting untoward conditions and guaranteeing the most liberal encouragement.

The apparent absence of water in some districts has been perhaps improperly considered a bane to profitable mining. This, too, like transportation, has proven to be more imaginary than real. The true hydrographic conditions are not understood, or perhaps have not been fully investigated. Several pipe lines destined to supply remote districts have been projected and built. Conspicuous amongst them are the Virginia and Gold Hill and the Candelaria lines. If any of the projected works have failed in being financed, it is due rather to a moral than physical equation—a lack, perhaps, of the community-of-interest idea, a common and pernicious doctrine in new camps. Certainly such lines are not impracticable, nor unworthy of investments.

At the Coolgardie mines in Western Australia water was the *sine qua non*. A thirty-inch pipe line, 328 miles long, was built to the nearest permanent supply. This is the

longest supply line in the world. Without it, the mines are worthless, unconverted and inactive assets; with it, they were treasure stores, negotiable and gilt-edged.

As heretofore suggested, local hydrographic conditions are not understood in many districts. They will bear careful investigation. Supplies can, it is almost sure, be developed. The bottom of many synclines will no doubt yield an abundance of artesian water from reasonable depths. One such was developed last year in Inyo County, California, where the environment was apparently forbidding. The conditions there were similar, indeed, both geologically and hydrographically, to conditions in some of the Southern Nevada districts.

Power, water and transportation are therefore investments of the near future which will be inviting and profitable. Considered as auxiliary or independent organizations to the mining companies, they will become the open sesames to many of the otherwise unprofitable districts. Indeed, they are the real impediment which today hamper the fullest development in many localities.

While all of the preceding facts exercise an important influence in the development of the State, perhaps the most salient and directly applicable consideration pertains to its economic geology.

It may be laid down as a basic principle that by far the largest percentage of the nobler metals has been derived either from the eruptive rocks or from other formations which have sustained regional changes due to the presence of igneous bodies. The mines of the Mississippi Valley may be noted as perhaps the only noteworthy exception to this rule. There can be but small question that there is a genetic relation between the association of metalliferous veins and eruptive rocks. The greatest producer in Mexico and the greatest producer in Nevada is each enclosed in identical formations. The same class of rocks predominate in at least all of Western Nevada.

These, then, are the conditions and the "formations" in which experience has amply proven ore veins are most commonly found. Whatever may have been the particular dynamic fact which created the fissures, the hydrochemical agents seem usually to have been present in sufficient quantities to fill the voids with silicious material and metallic ores. By far the larger part of Nevada is composed of eruptive rocks. Amongst them it is therefore logical to look for ore veins. The prospector knows that his so-called "porphyry" has enclosed many of the great mines of the country, and is still revealing their treasures; and upon that proposition, without always knowing the real reason, other than that of analogy, he predicates his future work. He is inclined, and rightly, to leave the more sterile formations to the other fellow. He is cognizant of the fact that ore is wherever he finds it, but he justly believes he is likely to make more profitable discoveries in or near to the eruptives.

It is generally true, particularly of Western Nevada, that the primary rocks which form the great basement floor were pushed up and crumpled into long, sweeping corrugations. The summits or inclines, being the region of greatest tension, became fissured and faulted most. These because the lines of greatest weakness and the avenues out of which the great volcanic flows escaped, sometimes overflowing in comparatively gentle floods, and in other instances bursting forth in violent eruptions, after the manner of the typical volcano, always at work, however, upbuilding the topography. Again, vulcanism, perhaps subsiding into a quiescent state, or still later once more overflowing the landscape, charged the air with stifling gases, volcanic ash, and blinding smoke. As the volcanic agents became again inactive, and the igneous mass underwent final cooling, the forces of contraction created faults, cracks and fissures not only within the eruptive mass but as well in the underlying primaries, which, as cooling still continued, began slowly to fill with metallic oxides and sulphides. The material from which the ores

and vein fillings were made was carried up through those fissures in the form of hot aqueous solutions.

It was a characteristic of ore genesis under such conditions that, after the volcanic outbreaks had ceased, the hot solutions rose along such avenues as the dynamic forces had created, and then by virtue of the well-known law, reduced temperature and pressure, deposited or let down their mineral lode.

Perhaps later, spasmodic and final eruptions buried the surface, hiding the newly formed veins from view; and at last much of this new outflow was eroded and washed away, thus bringing the veins again into view, and leaving their apices much as we find them today.

In some parts of the territory in question during the season of volcanic rest, and near the end of the eruptive period when the air was charged with moisture, lakes formed. Showers of pumice and ash intermittently fell, and these, together with the erode materials from the everchanging surface, accumulated to form layers of sand, mud and pebbles. In the lakes lived millions of infusoria, small microscopic shells, which accumulated in vast quantities. Many of these accumulations are today of economic value and are mined and marketed as infusorial or diatomaceous earth.

The profound faulting and blocking of the mineral zones and the deep-seated sources of the metallic ores, derived as they largely were from a primary and not a secondary source, presuppose deep, extensive and merchantable ore bodies, and bespeak, consequently, a prosperous, productive and long-lived future for the mines.

In the event of the last analysis is logically that there is now found this important and economic fact,—that almost this whole region is replete in those varieties of eruptive and volcanic rocks in which ore veins exist.

These are the criteria upon which may be based the assertion that Nevada is as inviting today as it was in the '70's when the eyes of the world were upon her.

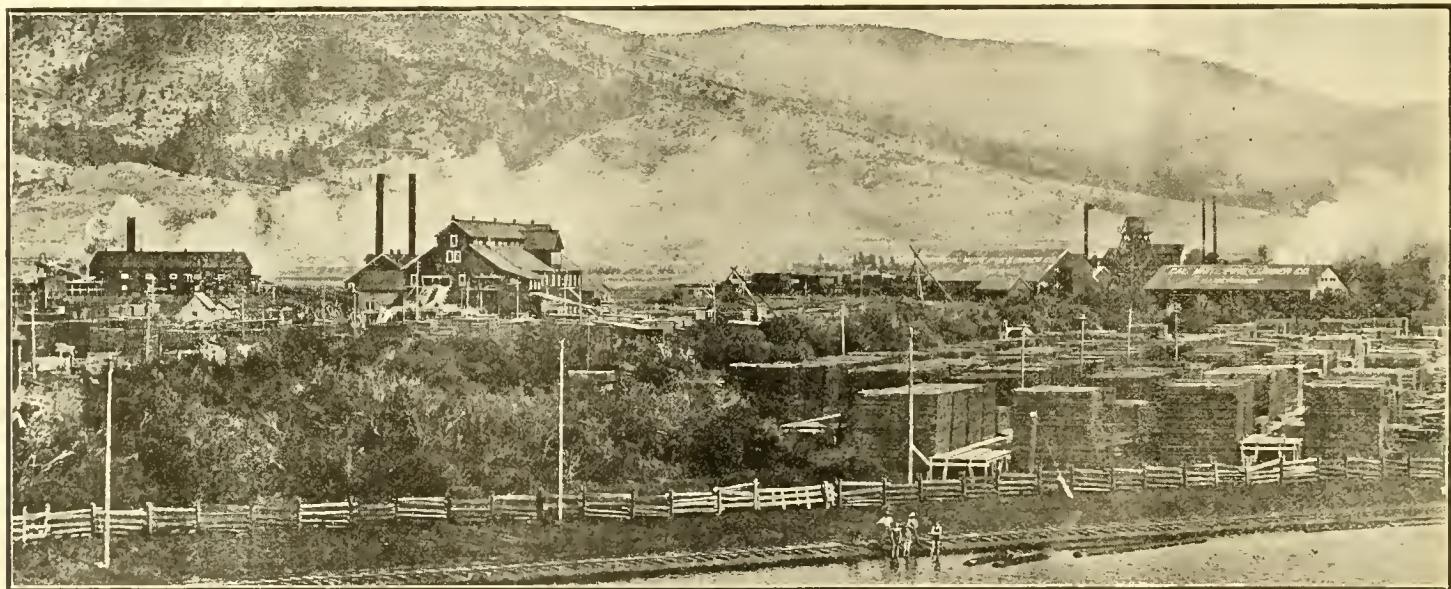
Lumber Industry.

CHARLES GULLING.

TAKing the eastern slope of the Sierra Nevada Mountains as a western boundary, there is a vast territory of timber lands whose only present marketable outlet is through the N. C. O. Railroad at Reno, Nevada, Verdi Lumber Co. Railroad at Verdi, Nevada, Boca & Loyalton Railroad at Boca, Cal., Hobart Mills Railroad and the Lake Tahoe Railroad at Truckee, Cal., all these points being on the main line of

the Southern Pacific Railroad. Sierra, Nevada, and Plumas Counties, in California, are noted for their valuable forests of white pine and spruce. This great timber body has scarcely been touched up to the present time, there having heretofore been no means of transportation to profitably reach the markets of the world either east or west, but since the advent of these railroads a great impetus has been given to the lumbering industry in this entire section. The old circular sawmills of small capacities have been superseded by new and modern band-saw mills of greater capacities; besides, many new ones have been added.

The demand for the product of these mills has been steadily



BIRD'S-EYE VIEW OF HORTON BROS., ROBERTS, AND CALIFORNIA WHITE PINE LUMBER COMPANIES, LOYALTON

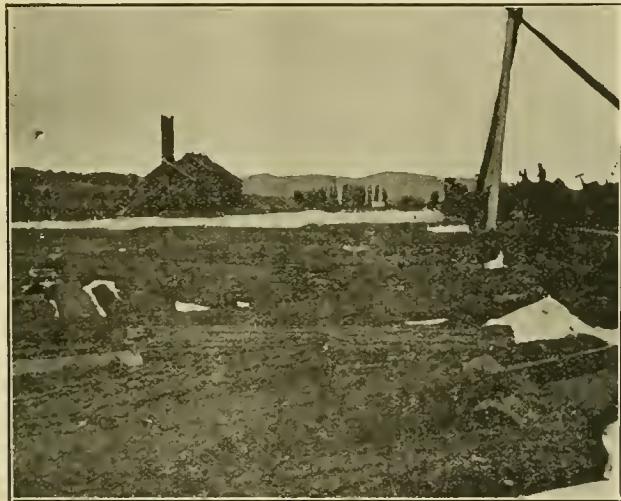
increasing, and much of the higher grades, owing to its superior quality, find ready sale in markets east of the Mis-

were taken. The several mills supplied by these forests are located as follows:

At Loyalton, the California White Pine Mills, with a yearly output of twelve million feet, and a box factory of same capacity. This company employs about 135 men in its timber and sawmill. The mill is modern in every respect. Being recently built it has all the latest improved machinery, and is what is known as a single-band sawmill.

The Horton Brothers' Mill has all the modern improvements in sawmill machinery in the way of steam feed, rollers, steam turners, etc., and has a capacity of 60,000 feet per day. Wages paid range from \$2.50 to \$6 per day, and one hundred men are employed in logging camps, mills and yard.

The Roberts Lumber Co. Mill is the only double-band sawmill located at this place. It has only been recently built, and is an up-to-date mill in every respect, with a capacity of 150,000 feet per day.



RENO MILL AND LUMBER CO. MILL AT LOYALTON

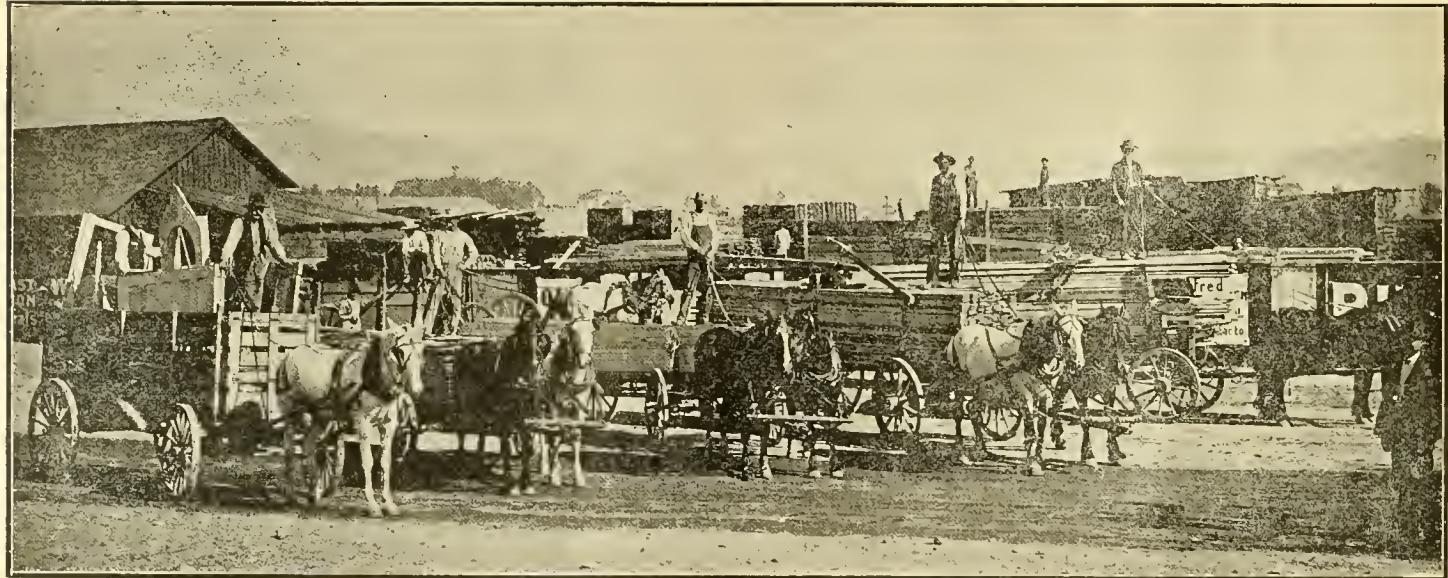
souri River. The lower grades are manufactured into packing box material and used in home consumption.

Plumas County is particularly rich in its timber products, especially so in its superior white and sugar pine, being of a soft and fine grain, and clear boards can easily be sawn up to 48 inches wide. Probably no other pine lumber section of the country can excel or even equal this either in the quantity per acre or the quality of its material. Up to the present time over three hundred thousand acres of timber have been taken under the government acts in Plumas County alone, and recently in one year one hundred thousand acres



PLUMAS BOX AND LUMBER CO. AT LOYALTON

The Plumas Box and Lumber Company's box factory has been three years in operation, and has a capacity of 12,000,000 feet per year in box shooks. The material for



RENO MILL AND LUMBER COMPANY YARDS AT RENO

this factory is supplied from the surplus of lower grades of the output of four mills, and is owned and operated by the owners of these mills. Wages paid range from \$2.30 to \$5 per day, and the number of employes about forty the year round. This plant also supplies power for the Loyalton Electric Light Co., a corporation capitalized at \$50,000. It furnishes the light for the mills and town.

The Turner Box Factory employs a number of men, and has only been recently built. It has all the latest machinery and manufactures the product of its own mill into building and box material.

The Reno Mill & Lumber Co. Mill is a single-band saw-mill with modern improvements, steam feed, steam turners, etc. Capacity is 60,000 feet per day. Almost the entire output of this mill is shipped to Reno, Nevada, where the company's yards and planing-mill are located. During the summer months this company employs about one hundred and twenty-five men in its mill, logging-camps, planing-mill and yards.

All of these mills have large supply ponds for logs capable of holding sufficient logs to run the mills early in the spring before logging can profitably be done. Loyalton Creek

supplies sufficient water for ponds and other purposes. The logs supplying all these mills are brought from the timber belt mentioned above by the Boca and Loyalton Railroad, and many trains may be seen daily crossing Sierra Valley to the north and south heavily laden with logs. The mills are permanently located in the town of Loyalton, and the plan is to extend the railroads into the forests as fast as same are cut, thus centralizing the manufacturing interests at Loyalton, thereby not necessitating the moving of expensive plants as the timber is being cut off. Contracts were made by these mills with the Boca & Loyalton Railroad to deliver logs for a term of years before they were located; in fact, this was a part of the plan before the road was built into this section, and the plan has proven to be mutually beneficial in many ways to all concerned.

The Verdi Lumber Co. Mill is located at Verdi, Nevada, and is a new and modern-built mill in every respect,—band saws, steam turners, steam feed, etc. Its capacity is 60,000 feet per day, and the logs are supplied by its own road. This company has a box factory in connection with its mill, and all under grades like those of other mills are manufactured into packing-box material.

The Truckee Lumber Co. Mill, located at Truckee, Cal., is a new double-band sawmill with modern improvements. The logs are brought from the shores of Lake Tahoe over the Lake Tahoe Railroad. They have a box factory in connection, and employ a great many men in the woods, factory and mill.

The Hobart Mills, located six miles from Truckee, transports its products over its own railroads to that place. This is a double-band sawmill, and was the first double mill erected in this section. It has a capacity of 150,000 feet per day; modern in every respect. A box factory and planing-mill is run in connection with this mill. The little town of Hobart Mills is beautifully laid out, and is a complete little town within itself,—store, schools, postoffice, shops, etc.

There are many other smaller mills located in different parts of this section, but space will not permit of more than passing notice. On the west side of Sierra Valley are located Turner Brothers Mill, Totten Mill, Noee & Ramelli Mill. On the Boca & Loyalton Railroad, Boca White Pine Co.



ROBERTS LUMBER CO. MILL AT LOYALTON

Mill, Merrill Valley Mill and Wheeler's Mill. Davies Brothers' Mill at Truckee, and J. C. Knickrem Mill at Mohawk, Cal.

In the development of this section too much credit cannot be given for the farsightedness of Captain Roberts and the Lewis Brothers, who have made it possible in building the Boca & Loyalton Railroad to develop one of the finest timber belts in the West. At seeming impossibilities and opposition they have struggled on and have succeeded, and the road is more than meeting the most sanguine expectations, and added to the lumbering business a great traffic in agricul-

tural products and live stock has sprung up. Active work was begun on this road from Boca, California, in 1899, and was completed to Lewis Mill, fourteen miles, in January, 1900, and in July of the same year was completed to Loyalton, twenty-six miles, and was the occasion of a national day celebration, July 4th. In the fall of the same year it was completed to Beckwith, making in all forty miles of road. It is now being built along the middle fork of the Feather River, several miles beyond. The road is well equipped and well managed. It is a success, a well-merited reward for the enterprise of its promoters.

LOYALTON.

Loyalton is beautifully situated on the eastern slope of the Sierra Nevada Mountains, and on the south edge of Sierra Valley at an elevation of 5,000 feet above the sea level. The old town of Loyalton was built nearly a half-century ago, and for many years a hotel and store composed the principal part of the town, but an awakening took place,—new life sprung up upon the advent of the Boca & Loyalton Railroad. At that time the population of the town was scarcely one hundred and fifty people; now there is a population of something like fifteen hundred. Loyalton enjoys the distinction of being the only prohibition town in Northern California and Nevada, and no gambling-houses are permitted. Singularly there has not been a criminal prosecution or an occasion for one for three years, except for violations of the anti-liquor law, and in these cases a conviction always resulted. In every election

the people have overwhelmingly supported this law. This condition has resulted in an unusually prosperous community, and many working men have built their own homes within the last three years. Besides the several sawmills and box factories, many buildings have been erected, among them being a splendid school building of six rooms at a cost of \$15,000, a Baptist church costing \$6,000, a Methodist church costing \$4,000, Masonic Hall at a cost of \$6,000, besides numerous residences costing from \$1,000 to \$6,000 each.

There are three hotels in the town, all doing a good business; many larger places are not so well supplied, nor do they have better accommodations.

The Sierra Hotel, near the railroad depot, has forty rooms, and has been recently refitted throughout. It is splendidly located, is homelike, and one can rest assured of the best of treatment.

The Loyalton House is located on the main street, near the center of the town; is well fitted up with nice rooms. The management is accommodating, and is doing a thriving business.

The Keys is a new hotel. Good accommodations, good board, and good treatment of patrons have made this hotel popular with the public.

The town has a splendid water system, supplied from pure mountain springs and several artesian wells. It has good streets and a good electric light system.

The winters are mild and the summers cool and generally very healthy, a most modern appearing little town where one might wish to make a home.



SCENE ON BOCA AND LOYALTON ROAD

Important Facts.

CAPITALISTS seeking investments in irrigation enterprises, or good locations for the planting of colonies, have sought them in each of the other States and Territories of Western America, until the best opportunities existing there have been taken.

While the people of other States and Territories have been searching out and advertising to the investing and home-seeking world their varied and abundant resources of soil, water and climate, no concerted effort has been made to show that Nevada possesses like possibilities, and that she has within her borders a hundred such valleys as the San Luis in Colorado, or the Jordan in Utah, which even today are begging for occupants, while more than one of ours can boast a semi-tropical climate equal to that of the Santa Ana in Southern California, in which lie the famous orange groves of Riverside, Redlands and Ontario.

What finer opportunity exists in this broad land for the development of colonization enterprises than exist in this State in the various valleys of the Humboldt River and its tributaries, or on the Carson, Walker, Quin, Truckee, Owyhee or Virgin Rivers? Where can be found richer soils, coupled with better and more easily handled water supplies? There is today no better field in the United States for the investment of capital or possibilities for the homeseeker than Nevada affords. The Chamber of Commerce would advise all who come here to make a home, not to come here unless they can command sufficient means for their support for the

first year and are able and willing to work. To all such success can be depended upon.

The cost of living in any part of Nevada is as low as any portion of the United States, all other things equalized, and employment is readily obtained at good wages. Steady and industrious mechanics or laborers can usually find positions and employment, and at good wages.

The following table will give a seeker of information a good idea of wages paid in our State:

Mine foreman per day	\$ 5.00 to	\$ 8.00
Miners per day	3.00 to	4.00
Mine laborers per day.....	3.00 to	3.50
Farm hands per month	30.00 to	40.00
Ordinary laborers per day	2.00 to	2.50
Blacksmiths per day	4.00 to	6.00
Carpenters per day	3.00 to	4.00
Physicians per visit	2.00 to	2.50
Machinists per day	4.00 to	6.00
Bookkeepers per month	50.00 to	150.00
Clerks per month	40.00 to	150.00
Paperhangers per day	4.00 to	5.00
Painters per day	4.00 to	5.00
Plumbers per day	4.00 to	6.00
Boilermakers per day	4.00 to	6.00
Teamsters per month, with board	50.00 to	80.00
Wood per cord	5.00 to	6.00
Lumber, rough, per 1,000		16.00
Board per week	3.50 to	5.00
House rent.....	15.00 to	25.00

(Per month for 4 to 6 rooms)

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The Douglas County Creamery Company.

THE Douglas County Creamery Co. was organized on March 24, 1893, on the co-operation plan, by forty farmers of Carson Valley as stockholders, with a capital of \$15,000, and elects its officers annually. The present officers are: F. Hellwinkel, president; M. Jepsen, first vice-president; M. Christensen, second vice-president; A. Hansen, secretary; and F. Hise, treasurer, who manage the general affairs of the company.

The creamery is located in one of the finest and best dairy sections in the State—namely, Carson Valley, Douglas County. The building is the most carefully constructed on the Coast, and was planned by Mr. C. C. Merrick, an experienced creamery man, who has the management of the plant, and who also equipped it with the machinery.

The building consists of one engine room with one 15 horse-power engine, one boiler with a capacity of 30 horse-power, and three pumps for hoisting water; one separator room with six separators; one cream and churn room with two combined churns and workers; one work room; one temporary storage room for butter, and one cold storage room, all these rooms having cement floors. The milk receiving-vat and weighing rooms are placed on a higher platform from the separator room, and convenient for unloading the milk cans. The creamery receives daily from the present eighty-three patrons about 35,000 pounds of milk, and these patrons receive monthly the highest possible price for their milk. From the above amount of milk there is daily manufactured from 1,400 to 1,500 pounds of butter by an experienced butter-maker.

The Douglas County Creamery butter has a record which is hard to beat, is in great demand in Nevada as well as in California, and is shipped to foreign countries on account of

its keeping qualities, and in 1894 received the Gold Medal for the finest butter exhibited at the Midwinter International Exposition. There is no other creamery on the Coast that pays more money to their patrons than the Douglas County Creamery Company, nor is there another creamery in the State that was so successful as the Douglas County Creamery, having been operating from the day of its starting up to the present time without closing down one day.

The patrons are allowed to take away fifty per cent of the milk they deliver in skim milk at a nominal price for dairy use at home, the balance of the skim milk being retained and given to hogs kept by the company and sold by the car-loads twice a month. Those hogs are bought by the company from their patrons at the highest market price, which is very convenient for them to find always a ready market for their hogs. In fact, the Douglas County Creamery Company is a very beneficial institution for Carson Valley, distributing every month from \$10,000 to \$12,000 among the farmers, and helping to build up the valley, which has a bright future.

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PUBLISHED EVERY THURSDAY AT
COLUMBIA, GOLDFIELD MINING DISTRICT, NEVADA

T. D. VANDEVORT, Proprietor

SUBSCRIPTION RATES	One year	\$5.00
	Six months	2.50
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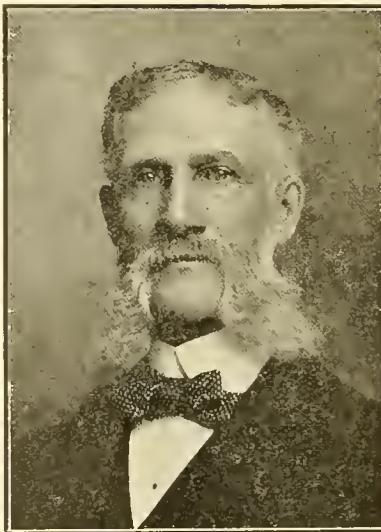
BIRD'S-EYE VIEW OF CARSON CITY—NEVADA'S CAPITAL

ORVIS RING is probably the oldest teacher connected with the schools of Nevada, and is still performing active duties in the educational line.

He was born at Stakesborough, Addison County, Vermont, July 21, 1833. At the age of 8 years, Orvis Ring moved with his parents to Canton, St. Lawrence County, New York. After residing there for three years, the family moved to Wisconsin, thence to McHenry County, Illinois. From McHenry County the family drifted to Du Page County, where Orvis Ring attended school for two months in the year. When the Illinois Institute, later Wheaton College, was established at Wheaton, Du Page County, Illinois, which is located twenty-five miles west of Chicago, Orvis Ring entered as a student.

By teaching the district schools in winter, and working in the harvest and hayfields in the summer, he finally succeeded in graduating on July 4, 1860, with six other young men, four of whom became preachers.

While a student in college, Orvis Ring frequently taught classes of different kinds, and after graduating taught in the village of Wheaton. Early in the spring of 1861, he, in company with two other young men, started for California, which they finally reached after being nearly five months on the road. With only a dollar and a half left, he had to go to work, and the first was cutting cordwood in Vaca Valley. While here, he took the teachers' examination at Fairfield. Going to Stockton, the first of September, 1862, he was importuned to try and get a school to teach, and going to Woodbridge, secured the school at that place, and again took the teachers' examination and again secured a certificate.



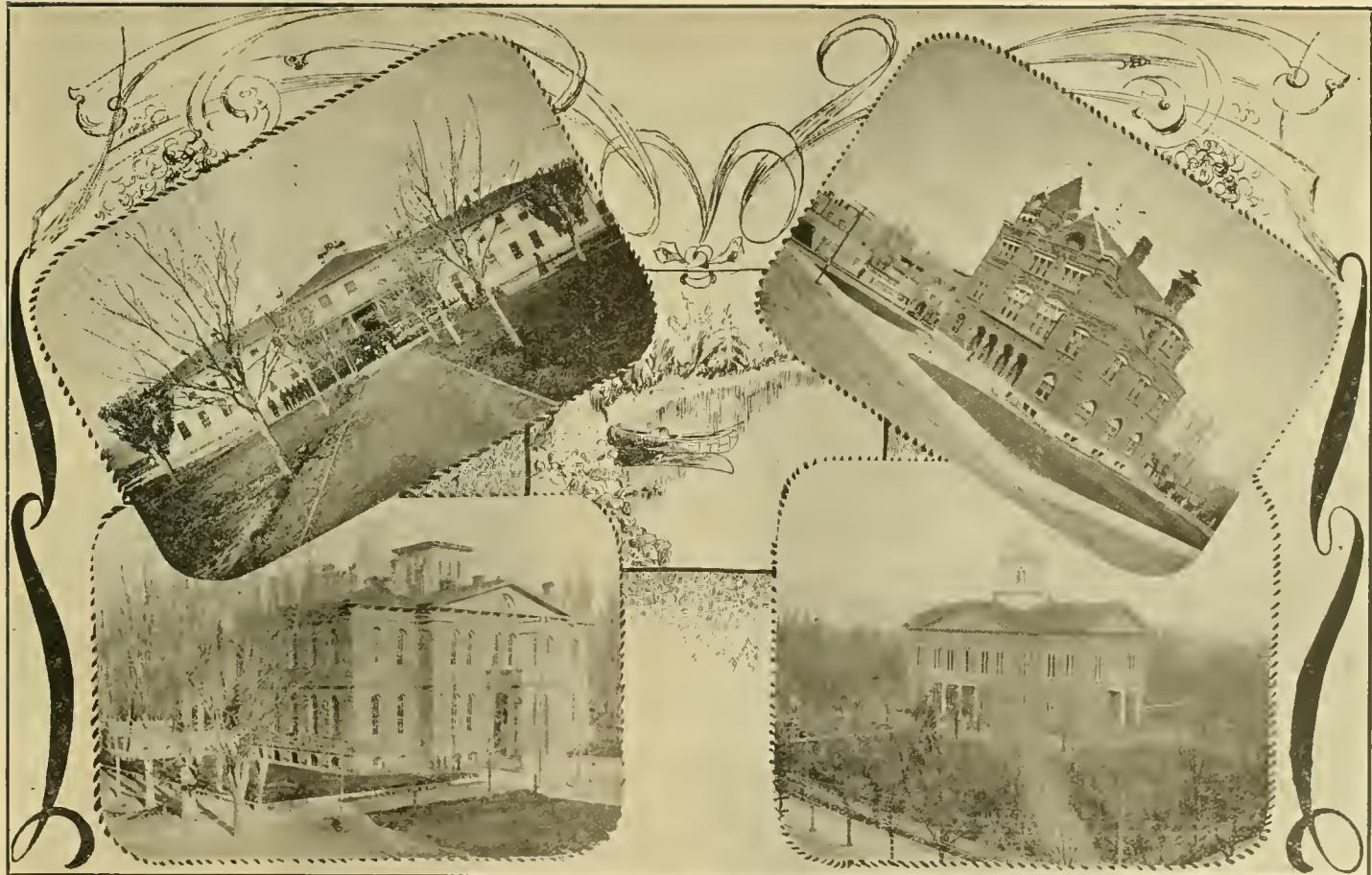
After teaching the Woodbridge school for a year, he crossed the Sierras on horseback to Washoe and Virginia City, and after a few days continued on to Austin, Lander County. Returning from Austin to Virginia City, he worked in the Potosie Mine for a few months, and then was offered the school at Ophir, in Washoe Valley, where he had a school of over 40 pupils. This school, at the time, was the most advanced of any in the Territory. Until February, 1867, he taught the Ophir school, and then went to Washoe City, and for a year and a half taught that school, enrolling over one hundred pupils of all ages, from six years to twenty-one. During the summer of 1867 he was deputy county assessor. In the summer of 1868 he went to Columbia, Tuolumne County, California, and for a year was bookkeeper for the U. S. Grant Mining Company, but quit that and went to San Joaquin County, near Lockford, and engaged in farming. The crop dried up, and again he was forced to go to teaching, in order to pay his debts.

In the summer of 1871 he received a "call" to return to Nevada, and commenced teaching at Reno on September 11, 1871, having but one assistant.

As he commenced teaching in Nevada in 1863, he thinks he is the oldest teacher in the State. In 1872 he was elected county superintendent of schools for Washoe County, and again in 1874.

Although over 70 years of age, he is as much interested in the education and training of the young as at any period of his life, although an old bachelor.

He is a fraternal man, being a 32° Mason, a K. of P., and an Elk.



INDIAN SCHOOL
U. S. MINT

POSTOFFICE AND COURTHOUSE
STATE CAPITOL, CARSON CITY

Fishing Interests.

J. P. MORRILL.

WHILE Nevada is known to have a small water area, she is known to have one of the grandest, the queen of mountain streams, "The Truckee River." This stream is abounding with the rainbow trout, and it affords the most favorable conditions for their growth and reproduction. We are so situated that we derive a vast benefit from the artificial plantings of fish that have been made in this stream by California, through the stream rising under their jurisdiction and flowing through ours. The rainbow trout are not indigenous to the waters of our State, but they have been very successfully introduced into the Truckee and Humboldt Rivers. Into the former they were introduced eighteen years ago, where they are now the dominating fish and are known to attain a weight of twelve to fifteen pounds, trout of this size and specie having been taken by anglers.

The Truckee River is famous among the Pacific Coast anglers, and is fast becoming a sportsman's paradise.

The Humboldt River, over three hundred miles in length, while not altogether held as a trout stream, has a few trout of the rainbow specie in the headwaters. The writer is endeavoring to have the large-mouthed black bass introduced into this stream, and should his project be carried out, which there is every indication that it will be (the Board of County Commissioners of Humboldt County being very favorably disposed toward assisting the work through), since the California Fish Commission have very kindly offered us a stocking of these fish, we look forward to see the Humboldt abounding with that healthful and nutritious food—the black bass. In addition to this fish serving as a food supply for the many thousands of people within our State, and also outside, it will frequent the waters of the Humboldt River for more

than two hundred miles, and will draw sportsmen to Nevada from far and near.

The Carson River is also a trout-producing stream today, the lower portion, however, having been denuded of trout owing to deleterious chemicals which have been discharged



FOUR HOURS' CATCH FROM THE TRUCKEE RIVER

into its waters. Could our Legislature once more create an office of Fish Commission and allow an adequate appropriation for the artificial propagation of fishes adapted to the different streams of our State, the Carson River, like many

other smaller water courses of our State, could be replenished. This river, with its glorious tributaries from the Alpine hills, should be a sportsman's paradise, instead of a barren and unproductive trout stream. Pyramid Lake, with its hundreds of miles of water area, once produced a bountiful supply of the "Salmo Mykiss" trout. It is hardly perceptible that such a vast body of water could have been so easily robbed of her formerly abundant supply of trout. The run of fish up the Truckee River, which is the only tributary of any importance to "Pyramid," is nothing compared to what it used to be some ten to fifteen years ago; thus we can readily see that the time is near at hand when the native trout will cease to reach us other than through the hands of fishermen on the lake. Winnemucca Lake, known as Mud Lake, has ceased to furnish us with a supply of trout, which was once abounding in the same. Walker Lake and River, which were once so productive of trout, have been taken by the carp, which is now the dominating fish.

The large-mouthed bass would be excellent fish for introduction into these waters; should they be introduced therein, the carp would soon be placed among the creatures "that were."

Throughout our State we have many small lakes and streams that are capable of producing some sort of trout life, which are barren and sterile of fish.

The fact that pisciculture is far ahead of agriculture is very little understood. An acre of water is capable of producing far more than an acre of ground if it be tilled with equal intelligence. That more people are not engaged in the work of private fishery is no doubt due to lack of knowledge on the part of the public.

"On the 'Truckee's' banks, with rod in hand,
The springing Rainbow, in speckled pride,
The Salmon, monarch of the tide,
Devolving from thy parent lake,
Make anglers merry, eager and wait,
By bowers of green and groves of pine."

Lovelock, Nevada

The illustration below shows one of the neatest, one of the best equipped and most completely stocked stores, in the special lines that it handles, that is to be found in Nevada, and comprises two departments, conducted exclusively for its men and women customers respectively. In the Men's Department may be had anything constituting men's apparel, including a large and exclusive line of shoes. In the Women's Department is shown a full and select line of dry goods and women's furnishings. Everything for men and boys, women and girls.



Transportation.

J. M. FULTON.

TRANSPORTATION is the burning question of the age in every country on the globe. It is the key to the situation in every human enterprise. By the development of effective lines of transportation which wrap the earth, England has reached the summit of historic glory and power, while neglect has placed her Titanic rival, Russia, at the mercy of Japan, the youngest of the nations. Turkey is in distress, and the peace of Europe is threatened because an extensive area in that part of the world is destitute even of wagon roads, and the hills are full of brigands, who rob and kidnap as securely as they did two thousand years ago.

Modern methods produce so cheaply that the products of every part of the world are open to every other part, provided the means of transportation are ample and the country that produces the most desirable merchandise grows rich the fastest, if it can get into the great channels that lead up to the world's wholesale markets. It is not the wares that are shipped into a State, but what goes out that enriches it.

The country that produces and sells gets wealthy in proportion to the prudence its people show in saving the results of their industry, instead of spending it for luxuries and delicacies which must come from the outside.

Charges on commodities into a State count for but little, for the charge is distributed in fractions so small that each one whom it touches hardly feels it. A suit of clothes costs from fifteen to sixty dollars, but the highest freight would not amount to more than twenty or twenty-five cents. A hat that costs from two to five dollars, even with the charges on the cases, could not use up more than five or six cents for freight in getting from the factory to the wearer's head.

It is the same with dresses, boots, shoes, with tea and coffee, with sugar and all sorts of supplies.

Even with farm machinery, wagons, etc., the freight is paid but once, while the machine lasts for years; but the crops which grow on the soil, the lumber made in the mill, the ores taken from the mine, the wool sheared twice a year from the sheep, and the beef sold every winter, go out so rapidly and regularly and are in such keen competition with the products of every other part of the world, that the question of rates may turn the scale between profit and loss.

A family can cut down expenses and save shipping goods in, but a business man cannot be successful if he is hampered in getting what he has to sell into the markets in reasonable time and at reasonable rates.

These conditions are found everywhere that men have made their homes, and they apply with more than ordinary force to the man who lives in Nevada. This State has no water transportation; it is a world by itself shut in by immense ranges of mountains on every side,—mountains so high and rugged that they were considered impassable half a century ago. It seemed to our forefathers that no one but the Indian, the hunter and the trapper could ever make a living here, but thanks to the genius of American enterprise railroads have been built over the summits, civilization has been established, and the fruit-grower, the farmer, the shepherd and the miner pursue their several vocations with the security, confidence, comfort and greater profit in proportion to capital invested than in the older States or in Europe.

It is not necessary to add that this state of affairs would be impossible without the existence of our extensive system of railroad transportation. The State of Nevada has the good fortune by a great trunk line of railroad to lie directly in the path of the greatest traffic in the world today,—a traffic that ebbs and flows between the old world and the new and between the occidental and oriental, a traffic that promises to develop to proportions of which no one even

dreamed five years ago. The shores of the Pacific are the seat of new and vast enterprise and development. Much of this traffic must and will pass our very doors, owing to the railroad which crosses the deserts and mountains of our State with grades, curvature and standard of general equipment that compare more than favorably with those of systems in the comparatively level States of New England and the Ohio Valley.

There are but few towns of equal population that are so well provided for in the way of transportation as Reno. Located as it is on the greatest one of all the overland railroads, the northern terminus of the Virginia & Truckee Railroad with its connections, which extend over three hundred miles of the country south, and the terminus of the Nevada-California-Oregon Railway with its connections covering one hundred and eighty miles north, makes Reno the center of a population and country greater than that of any other town of its size on the Pacific Coast.

Rates on the railroads that enter Reno, cost of construction, maintenance and operation considered, are extremely low, and especially is this the case on the products of the soil. Wheat is taken to tide water at a rate of \$5 per ton, baled hay at \$2.80 per ton, potatoes and onions \$4 per ton, apples \$7.50 per ton, live stock, wool, honey, lumber, ore and other products are given lower rates than prevail for the same service in many of the eastern States. Population considered, Nevada is given the best passenger service of any State in the Union. Three comfortable, yes, luxurious trains cross our entire State each way daily, and a special train each way every day between Reno and San Francisco. Strangers express surprise at the accommodations enjoyed by our people and the rates they get on their shipments.

Mutual advantages result from harmony and confidence, and if the people of Nevada realize that the railroads are their friends and all work together for the upbuilding of the State, we will enjoy prosperity in the next twenty years be-

yond the imagination of man to conceive. But one cannot build up if the other tears down. The interests of a community are homogeneous and not antagonistic. The lumber company can hurt the drayman, the newspaper can hurt the bank, the politician can hurt the farmer if they quarrel, but there is no reason why they should do so any more than there is for the man who ships to be at issue with the railroads.

A State cannot be made inviting to settlers without good railroads and fair accommodations. Nevada is not behind in this respect, and is indeed fortunate therein, as we have railroads reaching all points of importance and every one is solvent and reliable. They have resources equal to any probable demand. Only those who have lived along bankrupt and broken down roads know what a blessing it is to have substantial service and capable management.

The Nevada roads pay high wages to their employes, and consequently have the best men in the business,—men who make good citizens, men who feel secure in their positions because they know they are doing right, and know if they do right they are secure until old age overtakes them, when a pension is provided until death.

On the railroads of Nevada everything is kept up to high standard, and as the country grows there is every assurance that the systems required will be created speedily and effectively. Especially is this the policy of the Harriman lines, and it is well to remember that one thoroughly first-class road will be of greater benefit to Nevada than if we had several slipshod, half-kept, half-supported railroads.

THE TONOPAH MINER

The Official Paper of Nye County
Published every Saturday

DUNHAM & MORRIS

SAM C. DUNHAM - - - - - Editor

JAMES MORRIS - - - - - Business Manager

Subscriptions payable in advance { One year \$5.00 Three months \$1.50
{ Six months 2.50 Single copies .10

THE MINER'S PREDICTION: Two years from Railroad Day the annual production of the Tonopah District will be TWENTY-FIVE MILLIONS.

Public Schools.

PROFESSOR J. E. BRAY.

NEVADA did not grow into Statehood as other commonwealths have grown. A great mining discovery and the excitement attendant thereon, caused it to leap into Statehood, almost in a day, thousands of men coming in here from all parts of the globe, forming populous and thriving mining communities in the space of three or four years. Under ordinary circumstances, the population would not have been considered sufficient to form a State, but the nation was then in the throes of the Civil War, and the aid of another loyal State was needed in the Congress of the United States. And so, for patriotic reasons, Nevada was hurried into Statehood.

Fortunately the sturdy, intelligent, ambitious men who made up Nevada's early population were firm believers in public education. At the very outset, beside the corner grocery and blacksmith shop, there went up the church and the schoolhouse. In the three years of its territorial existence schools were generously provided, supported exclusively by each community. When a State constitution was adopted, in 1864, provision was made for a comprehensive system of public education, including a State University. By 1867, systematic school legislation had been enacted and liberal provision made for schools in every part of Nevada.

SCHOOL DISTRICTS.

By a provision of law, "each village, town or incorporated city of this State" constitutes a school district; and other districts may be formed by the various Boards of County Commissioners, for the accommodation of the people whenever or wherever the same are needed, upon application of five heads of families residing where a school is desired. This brings schools everywhere within easy reach of the homes of our people.

FUNDS.

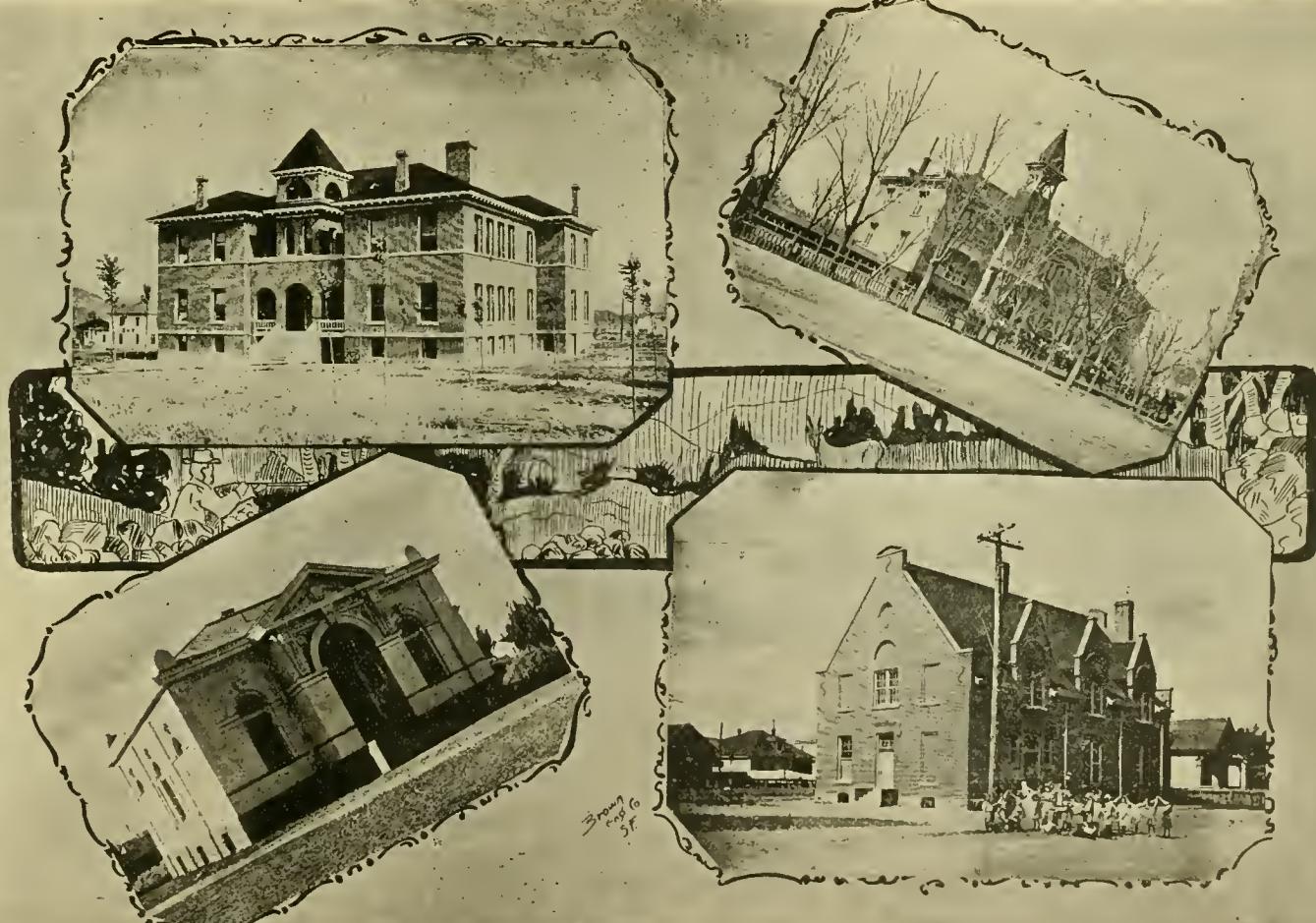
The money for the support of the public schools comes from four sources:

(a) A State school tax levied annually. (b) Interest on the Irreducible State School Fund (invested). (c) A county school tax. (d) Such special school taxes in each district as may, from time to time, be found necessary in order to maintain a school at least six months each year.

The Irreducible School Fund is now nearly \$2,000,000, all of which is kept invested, much of it bearing six per cent interest per annum. From the State, through direct taxation and interest on the Irreducible Fund, goes out to the various counties approximately \$150,000 per year; and nearly \$100,000 more is raised by direct taxation in the various counties. Thus about a quarter of a million dollars is disbursed annually for the education of Nevada's 10,000 public school children. It may safely be said that few States in the Union pay so much per capita for public education; and to this may be added, to the great honor of Nevada, that nowhere is money for the support of the public schools more willingly paid.

TEACHERS.

A very large proportion of Nevada's teachers have had collegiate or normal school training; the few who have not had such training are men and women with special aptitude for teaching, who have graduated from the best high schools, supplementing that education with such study and experience that they have often ranked among our very best teachers. Considering its sparsely settled condition and its long distance from great educational centers, Nevada is most fortunate in having so intellectual and capable a body of men and women to instruct her children. With increasing population and better and cheaper means of transportation—all of which are assured to Nevada in the near future—will come professional spirit and enthusiasm, more frequent teachers' conven-



LIBRARY AND SCHOOL BUILDINGS — RENO

tions for consultation and careful study of school problems and conditions, so essential for the best results in public school work.

SCHOOL TERMS.

In the cities and villages throughout the State, the schools are kept open ten months in the year, and in most of the larger country districts for the same period. Each district must have at least six months of school, and the average in the country districts is nearly eight months.

SCHOOL WORK.

In all of the schools of the State, the common school branches are well taught, while music, drawing, and nature study receive attention in many of them. Physiology is quite generally taught. Many of the country schools undertake even high school work for the benefit of some ambitious pupils who desire to go to the university. Without passing upon the wisdom of such instruction in a mixed school taught by one teacher, I may say that a few bright girls and boys have thus been enabled to pass from country schools direct to college.

In many of the larger towns, and notably in Reno, there are well graded schools with modern courses of study, with all the opportunities for education, including preparation for college or university, that may be found in the regular courses of the larger cities of the Union. At Sparks, a village not yet a year old, situated about two and one-half miles east of Reno, is a fine illustration of Nevada educational energy and enterprise. The Board of School Trustees there, in confident anticipation of its great future, are already planning the erection of a model school building, to be built of brick and to contain eight or ten rooms. They are arranging to open schools there in September, 1904, with an up-to-date school system, so that the people of the new town may have, from the beginning, the educational advantages that in the older towns have been the slow growth of years.

To the good people of other States and Territories who may be thinking of coming to Nevada, let me say: Nevada's schools are not so good as her people would like to have them, not so good as they intend to make them; but they are generally in excellent condition, being presided over by most worthy men and women.



ST. MARY'S SCHOOL, RENO

In 1898 the spacious brick building on the corner of Walnut and Chestnut Streets, known as St. Mary's Convent, was opened by the Dominican Sisters as a non-sectarian boarding-school.

The aim of the Sisters is to give young girls a solid Christian foundation, to fit them for higher education at the State University. Nothing is left undone to promote the comfort and health of the boarders who at present number thirty-five.

Special attention is given to music in all its branches. Painting and needlework also receive due attention.

Nor is the Parish school neglected. One hundred children of Reno are daily tutored in all the ordinary branches of education by the Dominican Sisters.

Indian Training School, Carson City, Nev.

C. H. Asbury, Superintendent.

THIS school is situated three and one-half miles south of Carson City, Nevada, on the road leading to the Carson Valley. It was established in 1890, when the first building was erected and school was opened with a few pupils. The capacity and equipment have been increased gradually, until there are now

needed, as attendance exceeds present capacity. The school is known locally as Stewart Institute, in honor of Senator Stewart, who has been instrumental in getting appropriations for its support and improvement.

The pupils are generally as tractable, orderly and well-behaved as may be found in any school of equal size, and seemingly eager to improve their condition, learning their work and lessons as well and as readily as scholars of other nationalities.



INDIAN TRAINING SCHOOL, CARSON CITY, NEVADA

some fifteen buildings, with an attendance of 270 pupils, boys and girls. They are given practical instructions in farming, carpentry, blacksmithing, shoe and harness work, tailoring and engineering; also in cooking, sewing and domestic work, besides the regular school-room work up to the eighth-year grade.

The pupils are enrolled from Nevada and adjacent parts of California, the attendance being voluntary. The buildings are being increased as fast as possible, and the room is

The superintendent has an able corps of teachers to assist him, who take great pride in the advancement made by their scholars.

This school is supported wholly by the government, and all employees are under classified Civil Service. There have been four superintendents since the school began, Messrs. Gibson, Mead, Allen and Asbury, the latter being the present incumbent.

The above cut shows but a small part of the present plant.

The State University.

PRESIDENT JOSEPH E. STUBBS.

THE Nevada State University at Reno is the head of the school system of the State. From kindergarten to university the student may go forward step by step. Its courses of study fill out and complete the courses of study in the common schools. When a student ascends the University Hill the doors of the university open wide to him if he has been faithful in the primary school, the grammar school and the high school.

The requirements for admission to the Nevada State University are the average requirements for admission to the eastern colleges. They are not quite so high as the requirements at Stanford University or the University of California, for the reason that there are but few high schools in the State; but they are sufficiently high to tax the capacity of the student for entrance. When a student has once gained admittance to the freshman class he finds himself under obligation to do the best work in the school which he has chosen, or failure is inevitable.

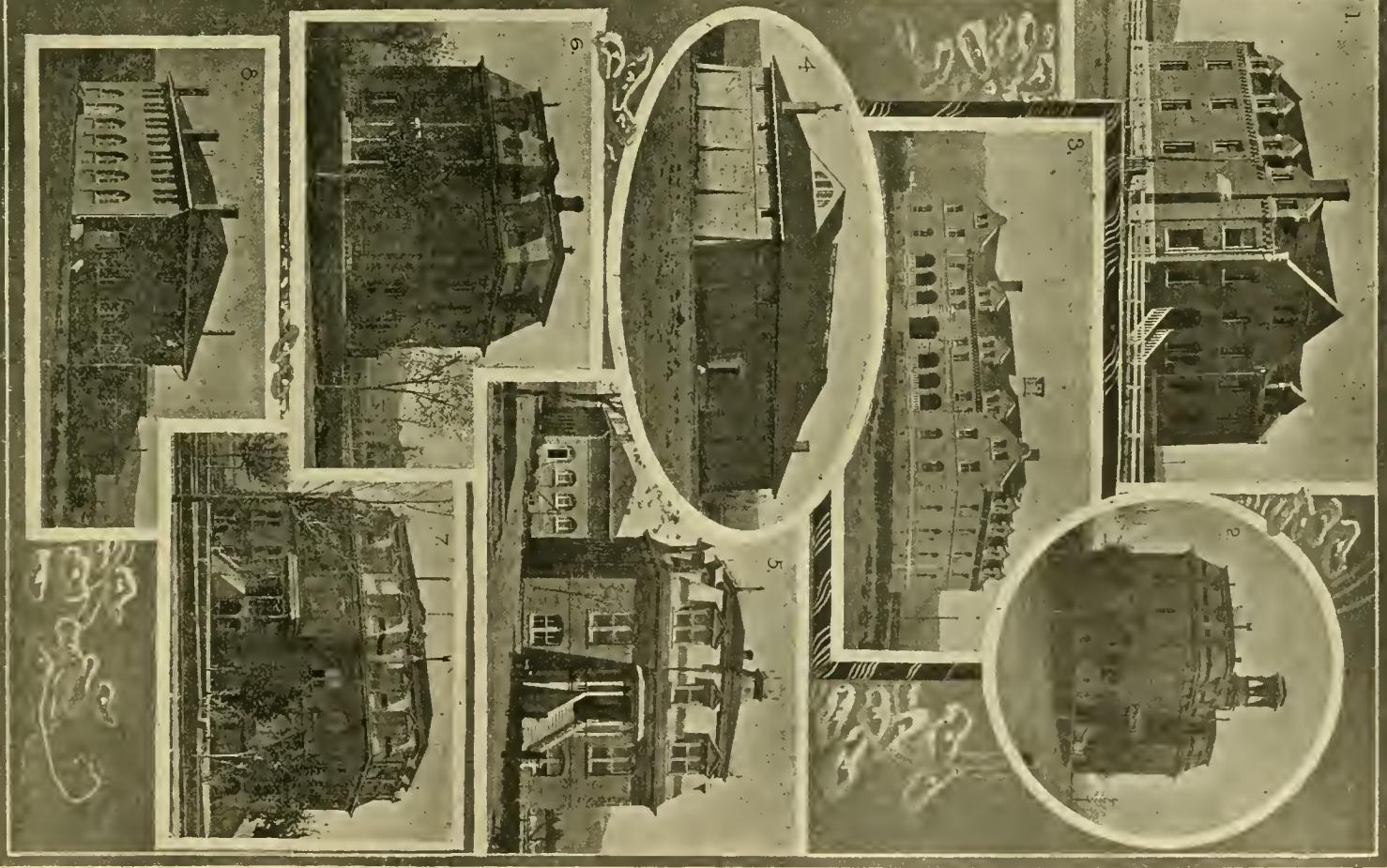
It is the only institution of collegiate grade in the State, and offers courses of study equal in extent and completeness to those of better-known universities. For example, it has a course in liberal arts and science which for breadth and thoroughness is hardly excelled. All subjects are required in the freshman and sophomore years, while in the junior and senior the work is wholly elective and the student may confine his attention to one, two, or three subjects.

The State Normal School is a department of the university. Those who have completed a high school course may give one entire year to pedagogical training, and then graduate with a grammar grade diploma. Candidates for the high school diploma must take the four years of training prescribed by the College of Arts and Sciences.

The School of Agriculture is a complete college course in agricultural science. There are at present few students in this course, but the future promises an increasing number inasmuch as the industries of agriculture, dairying and animal husbandry are increasing in importance and value every year.

The School of Domestic Arts and Science, which was introduced into the university two years ago in order to give the young women an opportunity for scientific and practical knowledge in the noblest of all arts and sciences—housewifery—has proved a marked success. There are from forty to fifty young women who pursue the various branches of cooking and sewing in connection with their other subjects, and with a decided gain to the work of the young women of the university. A young woman may obtain the degree of Bachelor of Arts or Bachelor of Sciences and have with it, at the same time, an adequate knowledge of the fundamental branches of housekeeping.

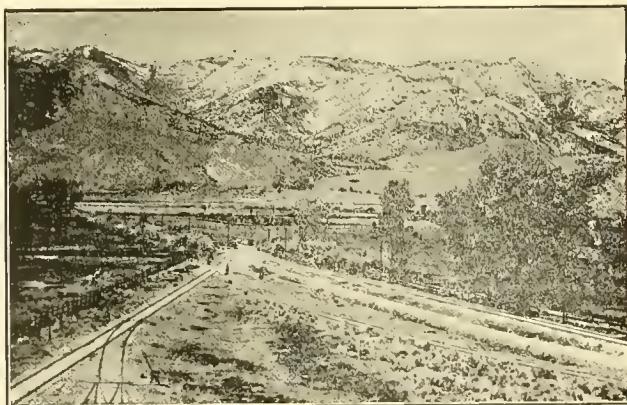
The engineering courses of the university are among the most prominent and most useful courses of education on the Coast. They comprise the School of Mining and Metallurgy, the School of Mechanical Engineering and the School of Civil Engineering. The lines of study are fully up to the requirements of the engineering profession in its several departments. The School of Mining and Metallurgy is the oldest and one of the best known in the university, and any student completing this course has a good, strong foundation for his future work in the profession of mining and metallurgy. One of our professors recently made an estimate of the number of young men who had graduated from the courses of engineering and what they are now doing. The total number from these schools is seventy-two, of whom sixty-nine are living; forty-seven are engaged in mining engineering or the management of mines; fifteen in other branches of engineering, and seven in other occupations. In their field of labor eleven are in South Africa, holding lucrative positions; two in Costa



Rica, one in Corea, five in Mexico, one in Texas, one in Washington, D. C., five in Montana, ten in California, one in Washington, one in Illinois, twenty-eight in Nevada, one in Utah, one in New York and one in British Columbia.

The School of Mechanical Engineering has been organized for five years and has made enviable progress in that time. Its graduates are holding excellent positions in this State, and there is a demand for more men than the department can supply. Instruction in woodworking, iron working and the technical subjects of the mining engineering profession is unexcelled. The instruction in drawing in all its branches is superior to that given in the majority of engineering institutions.

The School of Civil Engineering, now but three years old, is making excellent progress. It requires more work in surveying than any other of the engineering schools, and in the technical subjects of the profession, it aims to qualify the student for success.



SCENE NEAR CARSON CITY

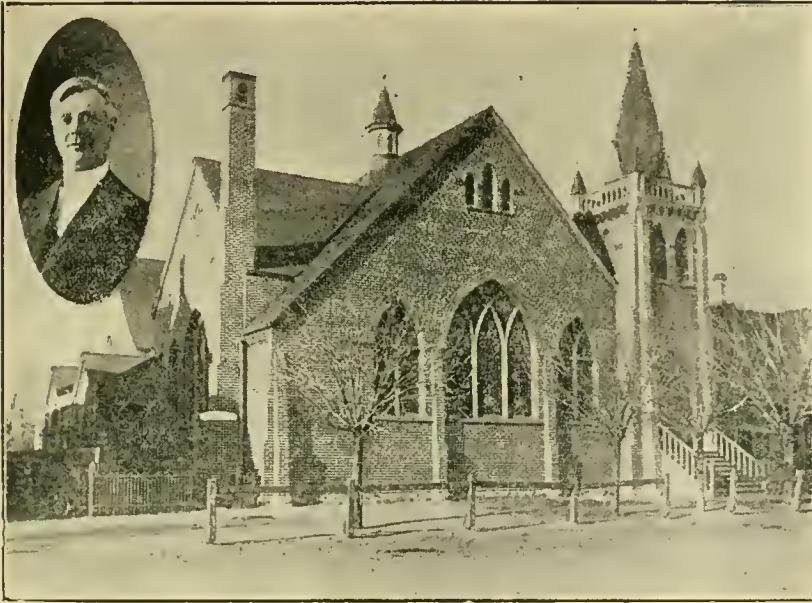
Work of the Churches.

REV. S. UNSWORTH.

THIS work is confined almost exclusively to cities and towns on railroad lines, which means that vast areas of the State are unvisited by clergymen of any name, and that thousands of souls are absolutely unshepherded. But in all the towns of any size on a railroad, churches or a church can be found, and there good work is being done, often in face of trials and discouragements unknown in more populous and more stable communities. There is much preaching of the gospel "to a procession," as some one aptly described his work in a drifting community. That requires faith and the courage born of it, and even greater faith is required to minister, not to a passing but to a dwindling population. Many of the old mining camps have become such, and hence have been abandoned by the minister, because first abandoned by the miner. An occasional visit from a bishop or a superintendent is all that such places can look forward to, "to give them their meat in due season." They probably, if they have any spiritual hunger left, often think the meat overdue. But there are many growing, many permanent and substantial towns, and they have, because they can support, or partly support, them, ministers and churches.

METHODISTS.

The Methodists probably occupy or supply the greatest number of towns, including Reno, where they have a large church, both building and membership, and a good parsonage, with an earnest and goodly pastor. The superintendent of the work of the Nevada Mission also lives here, adding strength to the local work by his strong and sterling personality. The same is true of the president of the State University, who is also a devoted clergymen of the Methodist Church.



METHODIST CHURCH, RENO

In Carson, Virginia City, Gardnerville, Lovelock, Paradise Valley, Winnemucca, Yerington and Austin are settled pastors, while in three or four smaller places licentiates are "trying their practice hand on men and then are making the women Christians."

John Wesley's spirit is here in Nevada, to the great profit of the State.

CATHOLIC CHURCH.

And, of course, the spirit of Ignatius Loyola isn't absent. That great Roman Catholic Church that throws such widely loving arms abroad is doing much to draw her children close

and keep them from the evil of the world here in Nevada as elsewhere. In Reno is a strong church with two zealous and faithful resident priests, with, for the present, an Italian priest to minister to the large number of his countrymen who live here in the "Truckee Meadows." Five "Sisters" also are here, engaged chiefly in conducting a good parochial school.

It has been impossible to obtain information as to the work being done in the eastern part of the State, which belongs to the district of Salt Lake, but in the western half, earnest and successful work is being carried on in Carson, Gold Hill, Virginia City, Tonopah, Wadsworth, Winnemucca and Verdi.

EPISCOPAL CHURCH.

The Protestant Episcopal Church early established itself in the State, and under the wise administration



CATHOLIC CHURCH, RENO



CONGREGATIONAL CHURCH, RENO

of its first bishop, grew strong. But like the other churches, it knows the sorrow of having had to abandon once promising places and seeing church fabrics go to decay. In Reno, however, and Carson, Virginia City, Wadsworth, Winnemucca and Verdi in the western part of the State, and at Elko, in the eastern, a very encouraging work is being done by five clergymen who minister to those places. Money is in the bank at Tonopah for a church building, and more ready as the salary of a clergyman, as soon as a suitable man can be found.

BAPTISTS.

The Baptists have, in Reno, a fine church and a live congregation, with an earnest and energetic pastor. He is bubbling over with vim, and East Reno, or Sparks, is catching the overflow. Work has been begun there. It is in the "day of small things," yet, but it is begun and will grow. At Verdi is a pretty little church, the only one in the town, belonging to the Baptists, but only used, at present, occasionally by them.

Another clergyman is at Wadsworth and preaching out to Fallon, where a little church is being built.

PRESBYTERIAN.

The last organization to establish itself in Reno was

the Presbyterian, about two years ago. A good church building has been erected, and already thirty communicants are enrolled, and the work is going vigorously on under the direction of a young, aggressive minister. The church in Virginia City is closed at present, but strong parishes are at Carson City and Lamoile, Wells, and Star Valley.

CONGREGATIONALIST.

Reno is the only town in the State where the Congregationalists have established themselves, but their congregation



EPISCOPAL CHURCH, RENO



BAPTIST CHURCH, RENO

here is in flourishing condition, and under the inspiration of a new pastor arrived, gives promise of a healthy extension of its activities. One of the best church buildings of the State is theirs.

ADVENTISTS.

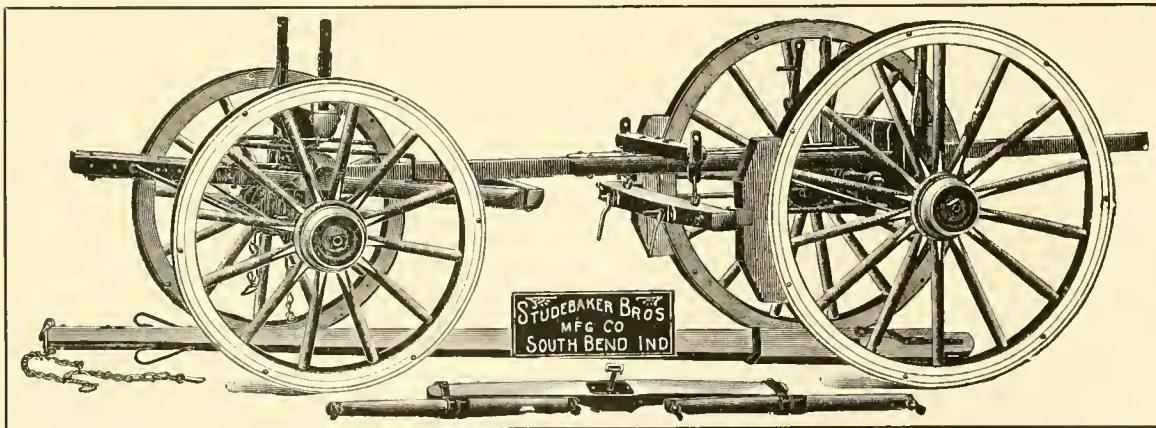
The Seventh Day Adventists also have a church in Reno, the sole one, it is believed, of the denomination in the State.

VOLUNTEERS OF AMERICA.

Mention of the Volunteers of America must not be omitted. They make their presence known wherever they are, and here in Reno their power is being felt. A hall on one of the principal streets in the business part of the town has just been bought, giving them the "local habitation and a name" that promise permanency.



PRESBYTERIAN CHURCH, RENO



There are today, and there have been since 1860, more Studebaker vehicles used in Nevada than all other makes combined. The fact that we give you a better wagon at no greater price is the only reason.

Write any of our Nevada agencies for catalogues and prices. If there is no agent in your vicinity write direct to us

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Climate and Health Conditions

HON. H. F. BARTINE.

AMONG Nevada's greatest attractions are the splendid climatic and health conditions which prevail, not merely in specially favored localities, but all over the State. There are considerable differences in temperature depending upon elevation and topography.

Along the line of the Central Pacific Railroad from Lovelock to Wells and that vicinity, the mercury sometimes falls so low as to make the reports almost appalling to people unfamiliar with Nevada conditions. Thirty or forty, and even sixty degrees below zero have been reported. Still so dry and pure is the atmosphere that the extreme cold is hardly noticed, and people seldom neglect their usual winter avocations on account of it. Taking the State as a whole, the thermometer seldom registers lower than fifteen below, and over wide areas there are many winters in which the zero mark is not reached. In summer from ninety to one hundred are about the top limits, and the heat is in no sense oppressive, for the same reason that the cold is not severely felt,—namely, the dryness of the atmosphere. Cases of death by freezing are exceedingly rare, while sunstrokes are practically unknown. In the humid climate of the States east of the Mississippi when the mercury rises above eighty-five, human beings and horses begin to drop, overpowered by the heat; but if either a horse or a man ever died in this State as a result of genuine sunstroke, the writer has never heard of it in all the thirty-five years that have passed since he became a resident.

The most disagreeable features of the climate are the high winds which sometimes prevail chiefly in the late spring. These are owing to the circumstance that the valleys become heated while the mountain ranges, being partially covered

with snow and considerably more elevated, are much cooler. The heated air of the valleys rises and the cooler air from the mountain rushes down to take its place. While those winds are rather unpleasant, they are of comparatively rare occurrence, and when they do come they are highly conducive to health by purifying the atmosphere. Nowhere in the United States are there upon an average more beautiful, sunny days than in Nevada. To say that we have three hundred perfectly clear or fair days out of the three hundred and sixty-five constituting the year is a conservative statement.

The climate is as salubrious as it is beautiful, and it may well be doubted if anywhere in the world general health conditions are better than they are here. It may be asserted with some assurance that no person born and bred in Nevada ever had consumption. There is literally no malaria, no diseases of any kind that can be ascribed to conditions of either climate or soil. With consumption and malaria practically unknown among the natives of the State, or those free from the diseases named when they came here, it is quite apparent that Nevada is exempt from two of the worst scourges which menace human existence and happiness in the region east of the Rocky Mountains.

Here, as everywhere, sickness and death come sooner or later to all. Still it can be said in perfect candor that nowhere else on the surface of this globe can one hundred and ten thousand square miles of territory in solid mass be found in which climatic conditions are more conducive to health and longevity than are those which prevail universally all over the sage-brush State. With just reasonable care people may live as long, as comfortably, and as happily in Nevada as anywhere else in the world.

While possessing a climate that ever keeps our inhabitants healthy, we also have for those who shall come afflicted with the various ills of life, nature's sanitariums in several hot spring resorts that rival in virtue any springs elsewhere

in the world. Prominent of these are Walley's, in Douglas County, to be reached by stage ride sixteen miles south of Carson City; this is a popular and well patronized resort, with excellent hotel accommodations.

The famous Golconda Hot Springs, at Golconda, on the Southern Pacific Railroad, in Humboldt County, and of which Louis Dutertre is proprietor, are visited by many people yearly. Some of the great virtues possessed by the waters of these springs are further mentioned on another page herein.

The Steamboat Springs, ten miles south of Reno, on the Virginia and Truckee Railroad, are composed of a group of geysers and other boiling outbursts of water, extending for a mile along the railway; they emit great clouds of steam which suggested their name, and are said to contain mercury and other minerals in solution which possess great curative qualities for complaints of specific origin and all chronic troubles. The surrounding climatic conditions are unsurpassed.

Lawton Springs are on the Southern Pacific Railroad, five miles west of Reno, and is a popular resort. Besides these there are Shaw's Springs, Carson, Ormsby County, Bruffey's Springs in Eureka County, and White Sulphur Springs at Elko, on the Southern Pacific Railroad, all of which are extremely well patronized.

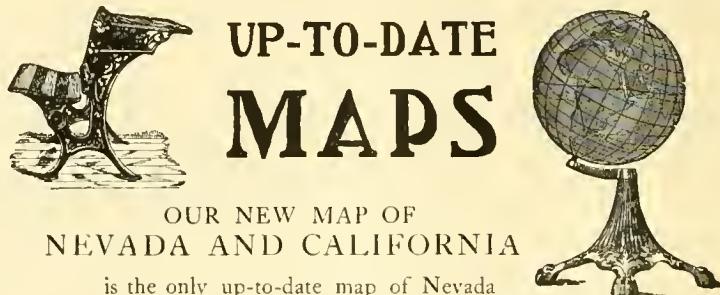
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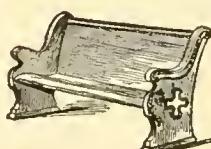
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SILENT TESTIMONY

A little over eight years ago this Company had but one store in Sacramento, handling furniture, carpets, linoleum, draperies, china, glassware, crockery, stoves, kitchenware, etc. Today it operates four large establishments in Sacramento, San Francisco, Stockton, and Reno. The total actual sales for the year ending Oct. 31, 1904, were over \$2,340,000. This is without doubt the largest volume of business done by any one firm in these lines outside of New York. California and Nevada are just beginning to be developed. Here is some "food" for thought.

John Breuner Co

Sacramento, San Francisco, Stockton, and Reno

Reno Power, Light and Water Company

INCORPORATED under the laws of the State of California, for \$1,000,000, office No. 117 Virginia Street, Reno, Nev. The officers of the company are composed of the following gentlemen: President, P. L. Flanigan; vice-president, Dr. W. H. Patterson; secretary, W. L. Bechtel; treasurer, the Washoe County Bank.

This company own and control the water plant, gas plant, electric light plant, storage plant, ice plant and Hyland Ditch, together with 5,000 acres of land. No purer water is furnished to the inhabitants of any city than is furnished by this company. The Hyland Ditch taps the sparkling waters of the Truckee River, fourteen miles above Reno, near Verdi. It empties into and is connected with two large reservoirs, having a capacity of 80,000 gallons, situated on the high lands near Reno. The water is furnished at a reasonable rate to their patrons. Reno consumes 8,000,000 gallons daily, using this water for irrigating lawns, gardens, and all domestic purposes—in fact, there is more than enough for a population double the present. The water mains are from 22 inches to 4 inches, and cover all the streets of Reno, so that every person who wishes can have all the water required for all purposes. The present system is to be extended to Sparks, three miles east of Reno, and is to be completed by January 1, 1905.

The company have acquired a number of absolutely pure springs of water, lying west of the head of their ditch, and intend no install this water to be used for domestic purposes only. When that is accomplished it is probable that Reno can boast of having the purest drinking water of any city in our land.

The present gas plant is small, and the rapid growth of

Reno has caused the management to contemplate the erection of a late, up-to-date plant commensurate with the city's present and future requirements, which will be installed in the near future.

The electric light plant is strictly up to date, with the most modern machinery, buildings, etc. This plant furnishes to Reno residents and surroundings light and power at a more reasonable price than is furnished by any other company on the Pacific Coast. There are over 60,000 incandescent and 90 arc lights in daily use in our city, and 5,000 incandescents in Sparks. The company operate their own plant of 600 horse power, and have a reserve bought from the Truckee River and General Electric Company at Farad, Cal., and connected by a long line transmission service with Reno. This company have contracted with the Southern Pacific railroad shops at Sparks to furnish 250 horse power, and the Nevada Transit Company (Reno street railway) with 150 horse power, and are always prepared to contract power and light in any quantity desired.

The ice plant operated by this company turns out a pure hygienic article, and suffice to say, the following figures will demonstrate their large patronage: From April 1st to October 31st of this year, their sales were 3,339,175 pounds. The cold storage plant owned by this corporation is equipped with the most modern appliances, and the company has perfect facilities for the storing of meats, eggs, butter, poultry, beer, etc., at very reasonable rates by the month or season.

By the foregoing our readers will readily see that Reno has all modern advantages in the matter of water, light, power, etc., making it the equal, in point of health, to any other city in the land, and superior to many. All these advantages, in connection with our pure mountain air, make life in Reno and vicinity ideal.



FLANIGAN WAREHOUSE COMPANY

The Flanigan Warehouse Company.

THIS is the leading warehouse company in the State. They have a large two-story brick building, with electric elevator and all modern improvements, situated on the corner of Fourth Street and Eureka Avenue, on the line of the electric railway. The building has one hundred and six feet frontage and a depth of one hundred and fifty feet, and even this is found hardly adequate at times, especially in the wool season, when the company have from one to two million pounds of wool to care for. This wool is stored in the great warehouse, completely filling it from the floor to the roof, and sales are conducted twice yearly, the representatives of the principal wool-buying centers of the East being present in large numbers at these semi-annual sales. Sheep supplies of all kinds will always be found at the company's salesroom, in charge of attentive salesmen. The company, in connection therewith, conduct a general storage and commission business, storing furniture and household goods, and, in fact, every commodity required, at reasonable rates. They are also general distributors of Castle Rock mineral water, A. B. C. beer, Port Costa flour, and are wholesale dealers in lime, cement, salt, sulphur, wool and grain bags, sheep dip, blacksmith and fuel coal, grain, flour, paper and twine; also agents for the Baker & Hamilton complete line of wagons, buggies, runabouts, phaetons, traps and trapettes, always carrying in stock the most complete line in the State; are also agents for the celebrated Champion mowers and rakes, and Buckeye mowers and Tiger rakes.

The company are incorporated under the laws of Nevada for \$50,000 fully paid up capital stock. The following are the officers of the company: P. L. Flanigan, president; James Dunn, vice-president; S. M. Sample, secretary and manager.

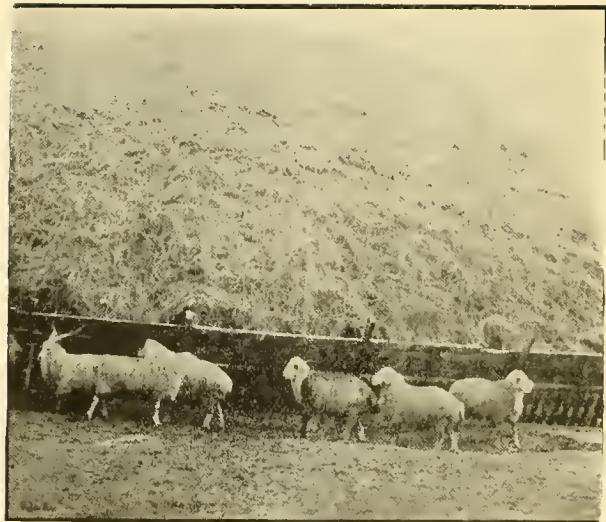


SENATOR P. L. FLANIGAN

Sheep Industry.

HERE is no section in the union where sheep thrive or do better than in Nevada. During the summer months the hillsides abound with fine native grasses, and in the winter sagebrush makes excellent feed. There are about 750,000 sheep in the State. Washoe, Elko, Humboldt, Lander and Esmeralda Counties contain the greater portion. The owners of these herds take great pride in their welfare, and import the best of blooded stock to increase their quality. Nevada wool commands the highest price in the market. The clip this year sold for 12½ to 16 cents per pound. Eastern wool buyers send their representatives to the Nevada sales, which take place semi-annually. At these times one of the busiest of these emporiums is the Flanigan Warehouse Company of Reno, Nevada, and during one of these sales there will be found the principal sheep owners of the State. The greater portion of the wool is shipped to the East in the original package in grease. Some little, however, is scoured in San Francisco, Cal. The French merino ewe crossed with the Lincoln, Schropshire or Cotswold breed, seems to thrive the best in this State, the mutton being of a very superior quality and the clip averaging some eight pounds. An average of 90 per cent of lambs are raised each year, and bring the very highest price in the Eastern as well as Pacific markets. This year Nevada lambs brought the *very* highest figure paid in the Chicago market.

The sheep industry is conducted on conservative business principles, and it is now one of the greatest sources of revenue in the State and increasing gradually year by year. And while there are now only about three-quarters of a million in Nevada, there is abundant room for many times this number, the sheep following the melting snow up the mountain sides during the spring and summer under the



FLAT-TAILED PERSIAN SHEEP FROM THE BLOSSOM RANCH,
BATTLE MOUNTAIN, NEVADA

watchful care of the herder and his ever faithful dog, eating of the tender grasses made by the melting snow and living comfortably during the winter months on the lowlands and in the valleys, thus making of Nevada an ideal climate for the successful raising of these animals.

The principal sheep owners of Nevada are P. L. Flanigan, James Dunn, J. D. Flanigan, Wheeler & Ridenour, Martin Predere, A. Fransen, Y. Yparraguirre & Brother, C. E. Day, C. E. Wedertz, J. J. O'Brien, John G. Taylor, W. W. Williams, Adams & McGill, Mrs. W. T. Jenkins, W. F. Mahoney, H. F. Danberg Livestock Co., Thos. Hill, J. W. Freeman, Noble & Talbott, Geo. Ernst, Eureka Livestock Co., Clover Valley Land and Cattle Co., Corbeil & Co., Jordan Valley Stock Co., Golconda Cattle Co., Thos. Nelson and John O'Kane.



FINISHED PRODUCTS READY FOR SHIPMENT

Troy Laundry Company.

THIS fine plant is an ornament to our city, and is situated on the banks of the beautiful Truckee River, at the corner of North and High Streets. The company have erected a large, handsome brick building, with fire-proof roofing, cement floors, and it is as near fireproof as it is possible to make a laundry. They have 50 feet frontage and 125 feet depth, and are equipped with the most modern, up-to-date laundry machinery purchasable. The company are incorporated under the laws of the State of Nevada for \$25,000, fully paid in. The officers of the company are the following, and are among Reno's leading citizens: P. L. Flanigan, president; J. H. Clemens, vice-president; S. M. Sample, secretary and manager. The company are doing the leading and largest laundry business in the State, having agencies at Tonopah, Carson, Virginia, Wadsworth, Winnemucca and Lovelock, Nev., also Lakeview, Ore., Altruras, Beckwith and Truckee, Cal., and many other points tributary to Reno.

The superior class of work done by this progressive company cannot be surpassed anywhere east or west, and under the present management is destined to keep pace with the city's and State's growth. In connection therewith they operate the Reno Clean Towel Supply Company, furnishing towels, looking-glass, comb, brush and soap at a reasonable monthly rental. This branch of their business is assuming large proportions, and is fully appreciated by the many who take advantage of this system. Their motto will ever be found in "honest work and honest prices."

Kindly send 10c for postage to the Nevada Chamber of Commerce, Reno, Nevada, for each extra copy of "Greater Nevada."

California School of Elocution and Oratory

Chartered 1881

The California School of Elocution and Oratory offers a systematic course in Elocution and Oratory, and grants legal diplomas upon its completion. This course prepares persons for teaching the art, for public appearances as platform reader or entertainer and for dramatic work. ¶ Those who do not desire the complete course may receive instruction in any or several of the following departments:

Voice Culture: Producing an agreeable and responsive voice able to endure prolonged effort.

Physical Culture: Giving health and development of body and ease and grace in movement.

Expressional Training: Giving self-knowledge and mastery, essential to success in any business or profession.

Reading: Producing ability to read, recite or speak effectively.

Dramatic Interpretation: Helping to a better appreciation of nature and art and to mental development and literary culture.

Repertoire: Programs suggested and pupils coached in recitations, monologues, character sketches, addresses, etc.

Parliamentary Law: Affording instruction and practice in the proper manner of transacting business in Clubs, Societies and public meetings. In this age, every man and woman should understand how to conduct such affairs.

Ladies and gentlemen may receive class or private instruction in the day or evening. ¶ A limited number of children will be admitted to special classes. ¶ Terms for lessons and further particulars will be furnished upon application to the principal, Miss EMILY CURTIS, M. E.

**Association Building, Mason and Ellis Streets
San Francisco, California**



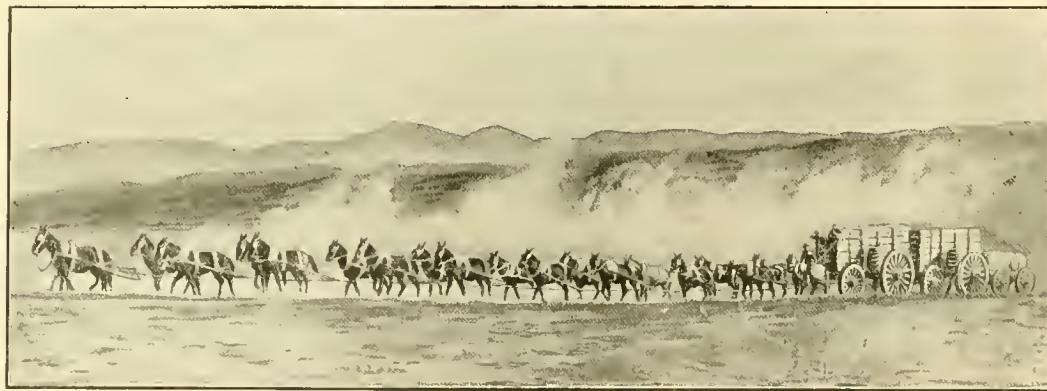
STREET SCENE AT RENO

History of the Borax Deposits in Nevada.

B. F. EDWARDS.

THE United States supply of borax is almost entirely obtained from California and Nevada. The first discovery was made in Lake County, Cal., in 1856. In 1862 the San Bernardino borax marsh was discovered. In 1871 borax was found on the marshes of Esmeralda County, Nev., by Mr. F. M. Smith, now president of the Pacific Coast Borax Company, the largest pro-

Marshes in the West differ very much in appearance from what is known in the East as a marsh. In the West they are not necessarily very soft or wet, but are generally dry lakes or lagoons covered with an alkaline crust. They occupy the low depressions in the bottom of the desert and receive the drainage from a large surrounding area, and the saline matter accumulating gives it a light, whitish appearance. After a local storm or a cloudburst they may be wet or soft for some time, but when the water evaporates, they glisten like fields of snow.



20-MULE TEAM HAULING BORAX.

ducers of refined borax and boracic acid in the world, whose famous twenty-mule team is now on exhibition at the St. Louis Fair, in charge of Mr. J. A. Yerrington of the Nevada State Building.

Mr. Smith also located a rich deposit in Nevada known as the Teel's Marsh Deposit, which furnished a large percentage of the annual output up to 1893. The Nevada marshes have been producing steadily since then.

At the time Mr. Smith discovered the borax it was a dry season, and the alkali deposits were more than usually extensive. From the hilltops he could see the gleaming white Teel's marsh, and on visiting it he found a heavy incrustation which seemed rich in borax on testing. It appeared afterwards that he had by chance stepped upon the richest portion of the marsh first. He was so impressed with the appearance of the marsh that he at once located

several thousand acres, most of which afterwards proved to be valueless. The material found in these marshes is called cotton-balls, a borate of lime. This is boiled with water and carbonate of soda, when the two minerals change partners, the carbonate in the soda uniting with the lime, forming a carbonate of lime, and the borate in the lime uniting with the soda in the proportions of two parts of boracic acid to one of soda, forming a bi-borate of soda or the borax of commerce.

Borax was worth 30 cents per pound when Teel's marsh was discovered, but so many small plants for the production of borax from cotton-balls were erected in different parts of Nevada, that a rush was started that almost ruined the market.

Mr. Smith finally obtained sole control of Teel's marsh by buying out over one hundred locators and clearing up all adverse claims.

About twelve years ago Mr. Smith transferred the property to the Pacific Coast Borax Company, in which he is the largest stockholder, and from that time on the growth of the industry has been rapid. Borax today retails in the larger States for 10 cents per pound in packages, and has a wide consumption among housewives, owing to its cleansing qualities.

Teel's marsh was the first deposit to be commercially profitable in the desert region, but the Rhodes, Columbus and Fish Lake marshes were afterward worked to good advantage, and are still working. They are all in Esmeralda County, and not many miles apart.

In general appearance these borax marshes are exactly alike. There is a bowl of a valley surrounded by picturesque, if barren, mountains, and at the bottom of this bowl is a vast deposit that looks like water, or salt, or dirty snow, or chalk, according to the conditions of the air and the distance of the spectator.

When one walks across the marsh, he finds it covered,

for the most part, with a sandy-looking crust through which the feet break. Below this crust there is commonly clay, more or less wet, and in places water and slime of unfordable depth. The marshes are, beyond doubt, the bottoms of lakes now dried up. No one can say just where the borates came from, how they were formed, or how deposited. This much is known, however: Borax, in the language of the chemist, is a bi-borate of soda—it is a compound of boracic acid and a small proportion of soda. Boracic acid is formed naturally in some volcanic regions, perhaps as certain other products are formed, the sulphurous gases, for instance. This boracic acid, in gaseous form or solution, came rising from subterranean laboratories, through certain other substances, and formed compounds with them. It came in contact with lime, and formed borate of lime, and with soda, and formed borate of soda. These combinations were formed under different circumstances, and therefore the compounds differ from each other in appearance, but just what these circumstances were, nobody knows. The cotton-balls occur in beds and nests and singly as well.

Wherever there is a deposit of borate of soda, the crust forming on the deposit continually increases in quantity. After the workmen have removed it, it grows again to a certain extent, but will eventually be worked out.

The marshes in Esmeralda County are at an elevation of more than 5,000 feet above the sea.

The writer regrets lack of knowledge bearing on borax deposits located north of Reno, operated for many years by Mr. J. M. Fulton.

Borax finds innumerable uses, and these are ever increasing. It is employed in more than fifty different industries, the most important, perhaps, being those of meat packing, glass and enamel ware manufacture, and domestic uses. There is probably no single article employed in the household which meets so great a variety of needs.

The Greater Reclamation Ditch.

FOR THE UNITED STATES GOVERNMENT IN NEVADA.

THE work for the Irrigating Ditch was let to the C. A. Warren Co., of San Francisco, and the San Francisco Construction Co. carried out and completed the work, the works furnishing all necessary plant.

The work consisted of constructing a concrete dam across the Truckee River, first diverting the water by means of sheet piling, and then constructing a permanent concrete dam, to divert the water into the canal. It required an excavation of about 1,500,000 cubic yards of earth, and owing to the formation of the ground it was necessary to make cuts over one hundred feet; there are three tunnels constructed on the line, that are lined with concrete. The sides of a large portion of the ditch are also concreted. The company have been working four steam shovels, locomotives,



A PORTION OF THE COMPLETED DITCH

cars, etc., also about 700 head of horses and over 1,000 men for a period of nearly a year.

The size of the ditch varies according to the nature of the ground. In one division, No. 1, it is 23 feet on the bottom and 15 feet deep, carrying 13 feet of water at all times.

The tunnels are all constructed a little smaller area, and the sides, bottom and arches are smoothly concreted and built with a heavy grade, permitting of a very rapid flow of water, and will carry all that flows through the ditch. Heavy spillways and waste-gates are constructed along the line at intervals to afford outlets for the water in case of a break in any portion of the ditch.

This ditch carries from 1,200 to 1,400 feet of water per second, and is one of the largest, if not the largest, in the country.

Reference to page 5 in this publication, on "Irrigation," by L. H. Taylor, engineer in the United States Reclamation Service, gives additional and detailed information regarding the ditch and the land through which it runs, as well as the character and great possibilities of the country.

This has been one of the most difficult pieces of work that will have to be done on this portion of the system, as the ditch runs through a rough uneven country, the material of which is very changeable; so far all engineering difficulties have been overcome, and the ditch will be completed and water running April 1, 1905.

The construction of this work has been under the direct supervision of Mr. A. J. Raisch and A. E. Buckman, who are devoting time and energy in carrying out its completion.

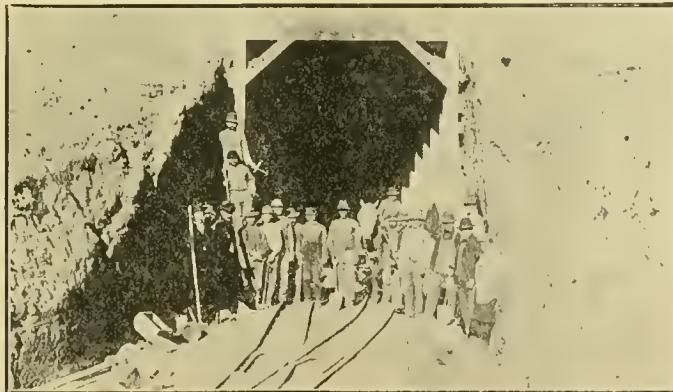
The Construction Company are operating 70-ton Bucyrus steam shovels on this work, and in order to lift the material out of the ditch and into cars it was necessary to have constructed special booms 40 feet in length. This is the largest boom ever operated on a steam shovel, and the Company have had no end of trouble and mechanical difficulties to overcome before reaching the point of perfection they have

now obtained. A picture of one of these shovels can be seen in the accompanying cuts. These shovels are now worked very successfully in the rough bouldery ground.

The carrying out and completion of this work is one of the greatest improvements that has ever been introduced by the United States Government, and its effect and benefit is very far-reaching, and it will put into cultivation a large tract of land that has heretofore been barren, which on the completion of this ditch and of the placing of water on the land will make it blossom like the rose, and the great and now barren waste of sand and sage-brush will be turned into green fields and waving with grain and corn. This work will encourage the undertaking of the same line of work by private individuals on a smaller scale.

The San Francisco Construction Company have had extensive work of this character throughout the entire Coast, and are equipped with a plant that will enable them to suc-

cessfully carry out any kind of ditch or excavation work, on a large or small scale; and are prepared to construct ditches or build railroads on short notice. The capable and efficient manner in which they have performed and carried out the



ONE OF THE TUNNELS WHICH WILL BE LINED WITH CONCRETE, THROUGH WHICH THE WATER PASSES



THE BIG LONG BOOM STEAM SHOVEL BELONGING TO SAN FRANCISCO CONSTRUCTION COMPANY

construction of this great work, and the many perplexing difficulties they have overcome, is a guarantee as to their ability to handle and carry out any work they may undertake in a satisfactory manner.

Mr. Buckman and Mr. Raisch, individually and collectively, have been in the contracting business for many years and have had a wide and varied experience in all kinds of work, including railroad building, tunnels, concrete and stone work, large excavations of both rock and earth, flumes and ditch work, pipe laying, sewerage and conduit work in all parts of the Coast, and have always given satisfaction. They pay particular attention to the treatment of their men and to the sanitary condition of their camps.

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Dodge, E. R.
Donnels, A. T.
Donald & Stinemantz
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Driver, W. G.
Dromiack, A.
Dryer, Chas.
Evans, M. L.
Everett, Frank C.
Fee, Dr. George
Feld & Jarvis
Field, H. L.
Fitzgerald, J. A.
Flanigan, P. L.
Flanigan Warehouse
Fleishman, L. P.
Fogg, W. A.
Foster, Sidney C.
Fox, A. W.
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Frank, M. & Co.
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Frey, Frank J.
Frisch, Charles J.
Fulton, J. M.
Fulton, R. L.
Genesy, B. J.
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Golden, Frank
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Graham, W. D. R.
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Gray, Reid & Wright
Great American Tea Co.
Griffin, A. D.
Grocery Co., W. B.
Gulling, C.
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Hayes, John
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Henry, James
Herz, R. & Bro.
Hershiser, A. E.
Hibbard, A. A.
Hibbard & McPhail
Hildebrand & Co.
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Hilsinger, E. C.
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Holesworth, George E.
Holmes, A. W.
Hopkins, J. W.
Humphreys, J. E.
Hymers, T. K.
Ingalls, G. W.
Jackson, J. W.
Jenkins, Mrs. W. T.
Jerome, S. B.
King, F. D.
Kirman, R.

Knox, Charles L.
Knox, H. L. W.
Kreft, A. B.
Kuhn Bros.
Larcombe, Geo. W.
Leeper, R. C.
Leete, Wm. H.
Lehrbuss, Mrs. L. E.
Leopold, J. C.
Levy, Sol
Levy, William
Lewis, Dr. J. A.
Lewis, F. R.
Loring, C. F.
Loveland, S. D.
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Manson, W. O.
Manning, A. H.
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McCormack, J. M.
McDowell, R. H.
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McNeilly, W. D.
McPhail, A. F.
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Merrill, E.
Merklinger, G.
Michael, J.
Mitchell, W. J.
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Mooser, Dr. C. E.
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Murray, J. J.
Nailey, J. B.
Nash, Richard
Nelson, A.
Nelson & Paterson
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Nevada Meat Co.
Nevada Planing Mill
Nevada P. W. & L. Co.
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Nolan, George E.
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Norcross, F. H.
North, A.
Novacovich, C.
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O'Connor, D. W.
O'Keefe, Dan
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Packard, P. N.
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Snyder, Chas.
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Sparks, John
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Spriggs, Fred R.
Steinmetz, Theo. J.
Stewart, W. E. M.
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Thompson, Harry
Tietjen, Henry H.
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Van Buren, H. M.
Van Duzer, C. D.
Vernon, E.
Vogliotti, Felix
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Walker, Dr. M. R.
Webster, W. W.
Wegg & Boughton
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Wheeler, S. H.
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Williams, S.
Williamson, J. H.
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Woodard, J. C.
Woods, Dr. C. H.
Wren, Thos.
Wright Bros.
Wright, John W.
Young, George J.

Publications on file at the Chamber of Commerce

American Mining News, New York

California and Nevada State Gazetteer and Business Directory, Suits-Shuman Co. Publishers

Central Nevadan, Battle Mountain, Nevada

Cherry Creek Miner, Ely, White Pine County, Nevada

Chronicle-Union, Bridgeport, California

Delamar Lode, Delamar, Nevada

Dayton Advocate, Dayton, Nevada

Eureka Sentinel, Eureka, Nevada

Inyo Register, Bishop, California

Lead and Zinc News, St. Louis, Missouri

Lincoln County Record, Pioche, Nevada

Lyon County Times, Yerrington, Nevada

Mining and Scientific Press, San Francisco

Mining Investor, Colorado Springs, Colorado

Mining Review, Los Angeles, California

Mining Review, Salt Lake, Utah

Mining Reporter, Denver, Colorado

Mining World, Chicago, Illinois

Nevada State Herald, Wells, Nevada

Orchard and Farm, San Francisco

Ores and Metals, Denver, Colorado

Pacific Coast Miner, Los Angeles, California

Petaluma Poultry Journal, Petaluma, California

Reno Evening Gazette

Sierra Valley Record, Sierraville, California

Sparks Headlight, Sparks, Nevada

Surprise Valley Record, Cedarville, California

The Argus, Lovelock, Nevada

The Bonanza, Tonopah, Nevada

The Bulletin, San Francisco

The Call, San Francisco

The Carson Appeal, Carson, Nevada

The Carson News, Carson, Nevada

The Chronicle, San Francisco

The Chronicle, Virginia City, Nevada

The Churchill Standard, Fallon, Nevada

The Enterprise, Virginia City, Nevada

The Evening Bee, Sacramento, California

The Examiner, San Francisco

The Free Press, Elko, Nevada

The Fruit World, Los Angeles, California

The Goldfield News, Goldfield, Nevada

The Goldfield Review, Goldfield, Nevada

The Ledger, Reno

The Nevada Observer, Reno

The Nevada State Journal, Reno

White Pine News, Ely, Nevada

The Record, Gardnerville, Nevada

The Reese River Reveille, Austin, Nevada

The Searchlight, Searchlight, Nevada

The Sunset Magazine, San Francisco

The Silver State, Winnemucca, Nevada

The Tonopah Miner, Tonopah, Nevada

The Tribune, Lovelock, Nevada

The Truckee Republican, Truckee, California

Tuscarora Times-Review, Tuscarora, Elko County, Nevada

Weekly Independent, Elko, Nevada

Battle Mountain, Nevada

THE BLOSSOM RANCHES, owned by Mrs. J. A. Blossom, James A. Blossom, and R. C. Blossom, Mgr., comprising, approximately, 25,000 acres, are situated in Humboldt County, about a mile from Battle Mountain, a growing and prosperous town and a great stock-shipping and trading center. These ranches are in the heart of the best agricultural land in the Humboldt Valley, through which flows the Humboldt

River, the largest in Nevada, affording great irrigation possibilities and insuring successful stock-feeding. A very fine artesian belt, the only one of its extent in Nevada, runs under this property, and there are seven deep artesian wells flowing at different points on the ranches which may be easily piped to any part of them and furnish an exhaustless supply of pure water. The ranches also control a large perpetual water right of their own, the oldest in the valley.

The soil is rich and wonderfully adaptable to the cultivation of many varieties of vegetation. The chief crop is alfalfa. About 20,000 tons of

this and other native grasses are harvested in a season, for which there is a ready sale, as stock of all kinds is fattened in Nevada for the western markets' winter supply of beef, pork and mutton. This ranch has some 3,000 head of stock, — horses, mules and cattle, a herd of Angora goats and a flock of Persian flat-tailed sheep, the only flock in the western States. These sheep are becoming famous for their

great size and for their many colored pelts which are made into beautiful and luxurious rugs.

Fruit and vegetables of all kinds are very successfully grown, the latter being of a size and flavor unexcelled, commanding a higher price in California than their own products. Experiments have recently been made with sugar beets, with gratifying results.

The climate in this valley cannot be surpassed anywhere in the United States,—the thermometer seldom going below zero, and with very little snow in winter, and in the summer being never oppressively warm. The nights are always cool.

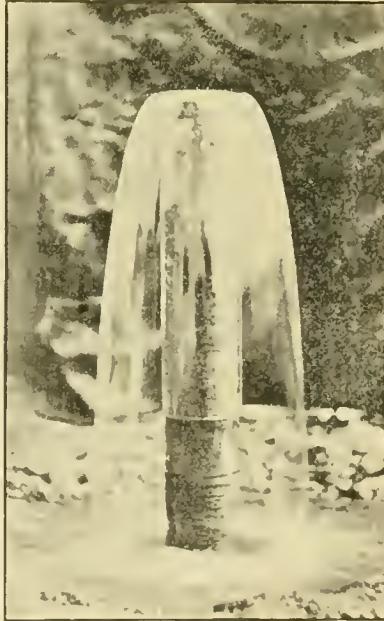
The fishing and hunting in this valley are especially fine, there being a great variety of wild game, and of trout in the Humboldt River.

It is the intention of the owners of these ranches to subdivide the property into tracts suitable for home seekers, and place them on the market. Full detailed information may be had by addressing R. C. Blossom, Battle Mountain, Nevada. The corporation also owns some of the finest and most profitable gold, silver, lead and copper properties in Central Nevada.



R. C. BLOSSOM

General Manager of the Blossom Ranch, Battle Mountain, Nev.



ARTESIAN WELL ON THE BLOSSOM RANCH

Mebius & Drescher Co.

Importers
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Wholesale Dealers
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Sole Agents :

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and Vegetables.

Agents :

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Agents :

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Pabst Export Beer and Blue Ribbon Beer.

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Prison or Chinese Labor
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Your Grocer Sells Them

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THE A. S. HOPKINS CO.

SACRAMENTO, CALIFORNIA

Ask for them please
Made here from Eastern corn
Each broom guaranteed



TONOPAH, NEV.

The Goddess of Gold flew o'er the earth
And pitied the desert bare;
A kiss she pressed on the desert's breast,
And the wealth of a world was there.

TONOPAH, Nevada, is today the objective point not only of the working miner and the hordes of miscellaneous individuals who flock to new mining camps, but is also attracting representatives of capital from all parts of the world.

Tonopah money and enterprise is responsible in a great measure for the discovery of the many adjacent camps, which otherwise might have lain dormant for years.

The story of the discovery of Tonopah is too well known to need repetition here. It is now four and one-half years since the Mizpah vein was located, and Jim Butler's little tent has been replaced by a well-built city with a population of about 5,000 people. The financial needs of the citizens are cared for by the Nye and Ormsby County Bank and the State Bank and Trust Company, both strong financial institutions. The streets, stores and many private houses are lighted by electricity. Abundant and wholesome water is supplied for all purposes by hydrants from the mains of the Crystal Water Company. accommodations are excellent, and the city cafes, which serve first-class meals.

Religious interests are represented by both Catholic and Protestant churches, and an organization formed by a number of the leading citizens of Tonopah was recently perfected, which will provide a public library, reading rooms, social rooms and a gymnasium. The public schools of the town are graded, including a high school, and the educational facilities are of the best.

Tonopah is connected with other towns of Nevada by railroad, and the accommodations on this line are first class in every respect, and the management caters in every way possible to the needs of the public.

To the visitor the town presents a very animated appearance, and the wonderful activity at the railroad yards, where teams of from eight to twenty-two animals are transporting various supplies, some unloading rich ore in sacks or bulk for shipment, presents a picture unequalled in any other part of the world.

Statistics show that the railroad brought into Tonopah in the month of October over 10,000,000 pounds of general supplies, which amount was nearly doubled in the month of November.

Naturally, one wonders what is the justification for this



JAMES L. BUTLER

The hotel ac-
affords several

October over 10,000,000 pounds of general supplies, which amount was nearly doubled in the month of November.

vast amount of commerce, and it is the object of this article to attempt to set forth the wonderful extent and wealth of the great mines upon which this rapidly increasing business is founded and firmly established.

In doing this, we commence with what may be termed the pioneer institution of Tonopah—the Tonopah Mining Company, owning the first original locations of eight claims made by Jim Butler.

This company commenced operations January 1, 1902, and has opened up the mine by six shafts sunk to various depths, with many drifts and crosscuts, which have developed one of the largest mines in America, and for extent of ore bodies and their values, it is certainly the richest mine in the State of Nevada today.

The main working shaft, known as the Mizpah No. 1, has been sunk vertically to a depth of 945 feet, and passed through the Mizpah vein at the 600 foot level. The main workings, however, are above this level, and below it no crosscuts have been run. The deepest point of the workings on the vein is 540 feet, where a drift on the hanging wall shows that the shipping ore is from 3 to 8 feet wide, but the vein has not been crosscut to determine its total width.

The Desert Queen shaft, 1,350 feet east of the Mizpah No. 1 shaft, has been sunk to a depth of 1,127 feet, and the eastern extension of the Mizpah vein is now being developed on the 814 level, in the ground of the Tonopah-Belmont Development Company. In these eastern workings, the Mizpah vein continues of an average width of 6 feet, and maintains its regular values—the Belmont mine being a regular shipper. The Brougher shaft, 100 feet east of the Mizpah No. 1, has been sunk to a depth of 700 feet on high-grade ore. The Cutting and Lynch shafts, both sunk on the Mizpah vein to a depth of 300 feet, are also in high-grade ore. While the workings have opened up the great Valley View and Mizpah veins, there are three other parallel ledges which are of milling grade not opened up.

The development work on the Tonopah Mining Company's mine amounts to more than $2\frac{1}{4}$ miles in extent, and has practically been entirely in ore. The company has estimated the enormous dumps of ore piled up on the surface at 26,469 tons, with a value of \$962,374. The value of the ore actually blocked out and in sight in the mine on both veins is estimated at \$55,000,000. The total output of the mine up to the commencement of all rail shipments on September 10, 1904, including \$4,000,000 shipped by leasers, is about \$7,300,000, the ore assaying from \$100 to \$300 per ton. Since then the all rail shipments have brought the total output to \$7,570,000. These shipments would have been greatly increased if the railroad had been able to haul more ore, as the company has a contract for the delivery of 100,000 tons of ore to the American Smelting & Refining Company at Salt Lake City.

The mine is equipped with several hoisting plants, air drills and substantial surface buildings, and is under the management of Frank A. Keith, who has for his superintendent Alexander Johnson. The future development of the property will include the building of a railroad to the collar of Mizpah No. 1 shaft, the erection of enormous self-loading ore bunkers, and the sinking of another large working shaft on the Mizpah vein, about 1,000 feet west.

Adjoining this great mine on the east are the properties of the Tonopah-Belmont Company, comprising 11 claims on the west, south and east sides, and a part of the summit of Mount Oddie. These are being developed through the Desert Queen shaft by the Tonopah Mining Company, and a large quantity of shipping ore is being raised and shoots of high-grade ore encountered.

South of and adjoining the Tonopah Mining Company are the 17 claims of the Jim Butler Mining Company, under the same management as the two previous companies. These claims are being opened up by drifts on the 340 and 540 levels on the Valley View vein.



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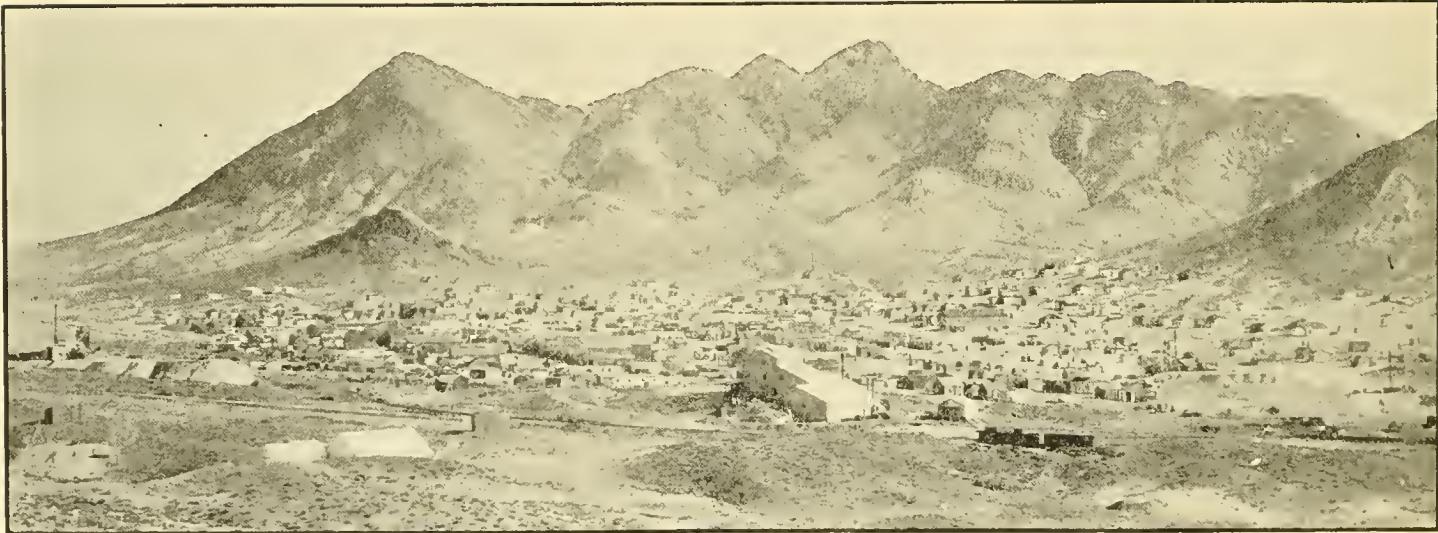


4



ARCHITECTURAL BEAUTIES OF TONOPAH, NEV.

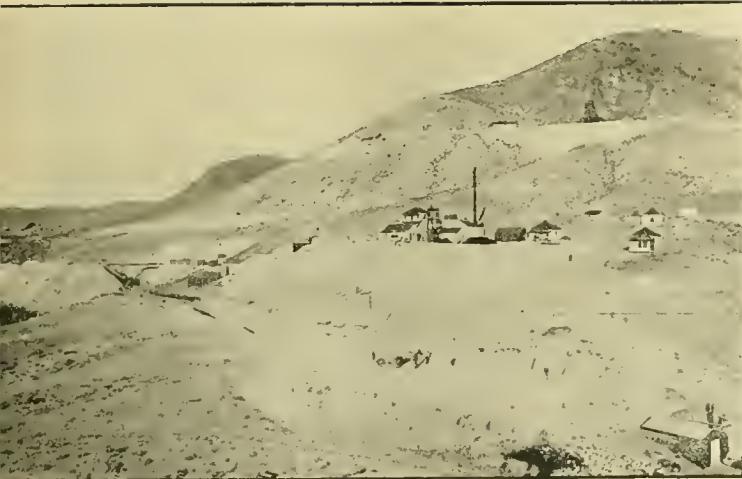
NO. 1, DUGOUT; NOS. 2 AND 5, BARREL HOUSES; NOS. 3 AND 6, BEER BOTTLE HOUSES; NO. 4, TONOPAH MINING COMPANY HOUSE.



BIRDS-EYE VIEW OF TONOPAH, NEV.

Adjoining the Tonopah Mining Company on the north are the 15 claims of the Montana-Tonopah Mining Company, covering a width of over 4,600 feet across the vein system and over 1800 feet on its course. The underground workings on these claims amount to 7,000 feet, and the mine still has 3,400 feet of unexplored territory north which may prove as valuable, or more so, than that now being worked. The company commenced shipments in May, 1903, one carload of 26 tons realizing \$8,787 net, and total shipments to date amount to \$286,000; \$50,000 was distributed as a dividend, of 5 cents per share, in December, 1903, being the first dividend paid by a Tonopah mine. The ore blocked out is estimated at \$3,000,000. The mine has been opened up in a thoroughly practical manner by G. F. Badgett, who had

continuous charge for over two years. The property is well equipped with a 50 horse-power steam hoist and dynamo for generating electricity to light the mine, work drills, etc. There are 15,000 tons of ore on the dump which will yield a net profit of \$20 per ton. The future plans of the management are to sink a new triple compartment shaft, and railroad switches have been built so that the ore from this shaft can be loaded by gravity, and by another switch all supplies will be unloaded in the same manner. It is also intended to erect a mill so soon as a treatment process has been decided upon. The mine is now under the management of Donald B. Gillies, a well-known mining engineer of Butte. Malcolm M. McDonald, also of Butte, is consulting engineer.



MONTANA-TONOPAH MINING COMPANY'S PROPERTY.

The company is in a strong financial position, and still has 165,000 shares in the treasury unissued.

Adjoining this great mine on the east is the property of the North Star Mining Company, owning 5 claims, which has a shaft sunk to a depth of 1,085 feet. This mine is yielding a fair quantity of shipping ore and large bodies of milling ores. A large force of men are now employed opening up this meritorious property.

Another mine which is being actively developed is the Rescue, adjoining the Jim Butler Company on the east, where the main shaft is down about 400 feet.

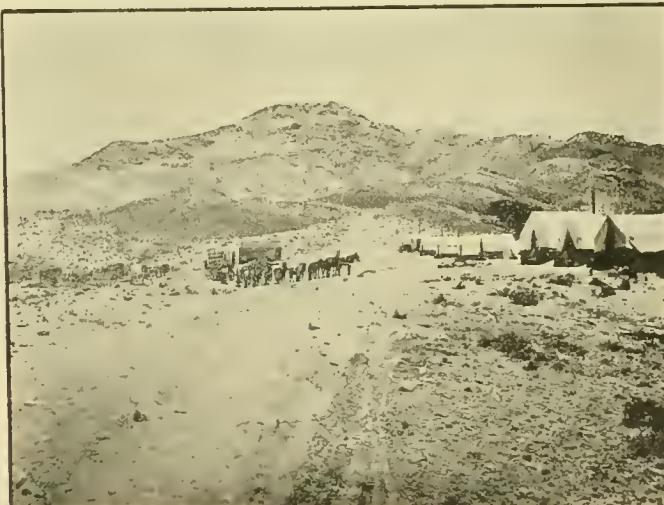
These are the mines which are now developing what may be called the master veins of the camp, from which many other smaller veins branch out, and still further east the Halifax Mining Company has recently cut a vein, not yet

identified, of low-grade ore. But the greatest amount of prospecting is being done on the western extension, where the Midway Mining Company has opened up three veins with values running from \$30 to \$120 per ton.

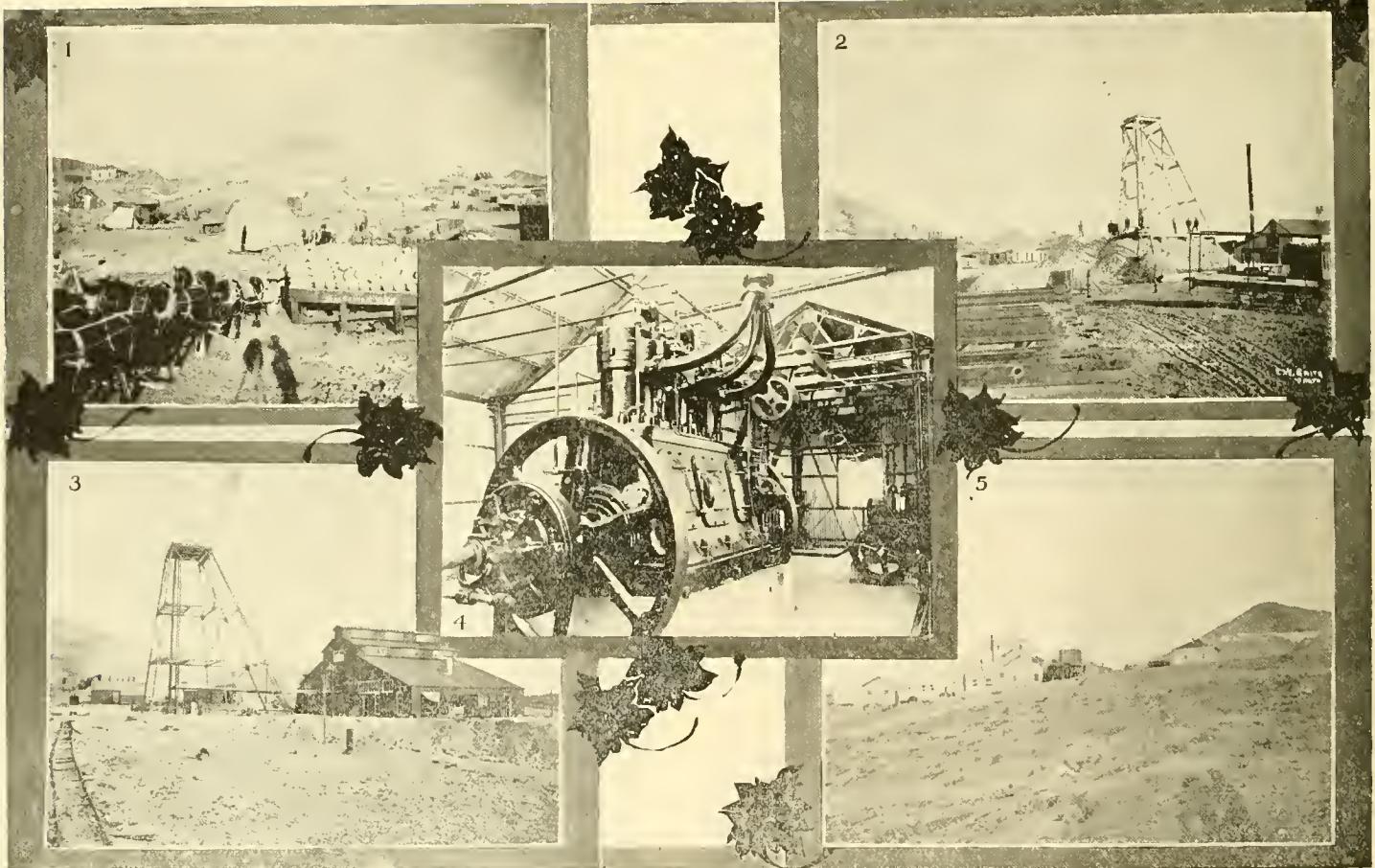
THE JOHN MCKANE PROPERTIES.

The most important of the western developments are in the properties owned by John McKane, C. M. Schwab, and others of Pittsburg, and under the personal management of John McKane, who brought to this State for investment the millions of the steel trust king.

This syndicate controls the Golden Anchor Mining Company, adjoining the Midway on the west, the mine being equipped with a 90 horse-power hoist. It also controls the



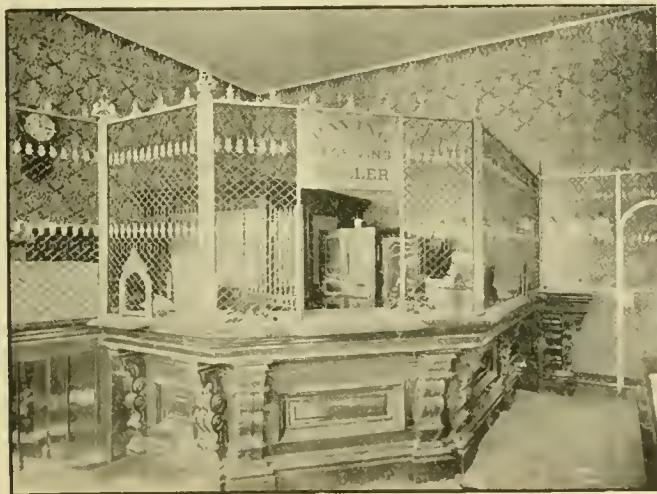
LONE MOUNTAIN DISTRICT.



NO. 1, LOADING GOLDFIELD ORE IN CARS; NO. 2, TONOPAH EXTENSION; NO. 3, MIZPAH MINE ORE BUILDING, TONOPAH MINING COMPANY; NO. 4, TONOPAH MINING AND DEVELOPMENT COMPANY; NO. 5, MIDWAY MILL AND MINE, TONOPAH.

Tonopah-Extension mine, covering the extension of the Mizpah vein, and this is today one of the richest mines in Tonopah. Drifts, crosscuts and raises for air bring the total amount of underground workings in this mine to over 2,000 feet. The property is well equipped, and is shipping one carload of ore a day from development work, which is graded to about \$125 per ton.

In addition to the above, the same people own the Pittsburg-Tonopah, a western extension of the above; shaft, 600 feet and still sinking; also the Red Rock group, southwest of the Tonopah-Extension, 300 foot shaft, still sinking. They are also developing the Hasbrouck mine at Gold Mountain. Still west of the Pittsburg-Tonopah is the West Tonopah, which has just commenced operations. South of the Tonopah-Extension is the McNamara mine, which is



STATE BANK AND TRUST COMPANY, TONOPAH, NEV.



WE HOPE MINE, RAY DISTRICT, TONOPAH, NEV.

actively developing a vein of good milling ore, and also the Ohio-Tonopah, where nearly 3,000 feet of work has been done.

Right in the heart of the town is the West End mine, owned by F. M. Smith, the "Borax King," where a large amount of work has also been done.

On the south side of Mount Butler are the claims of the New England-Tonopah Mining Company, carrying low-grade values in gold and silver. The necessary machinery is being installed to thoroughly and honestly prospect the large extent of territory owned by the company.

One of the pleasing features of this great camp is the 10-stamp mill erected by the Tonopah Mining, Milling and Development Company, composed of 20 of the most energetic pioneers of the camp, who were interested in leasing in the early days, and built this mill to reduce the immense quantities of lower-grade ores which remained on the dumps



FOREMAN BROS., MINERS' DRUG STORE, TONOPAH, NEV.

when leasing ceased. The mill is built on a cement foundation with steel frame, and has space and power for 20 stamps. It comprises 10 stamps, 2 Huntington Mills, grading pans and amalgamation pans. The power for this is furnished by a Diesel oil engine operated with California crude oil. Not only has the mill successfully demonstrated that the oxidized ores can be treated locally, but it has released to the owners of the dumps over \$250,000, and is today still busily crushing out the precious ores, under the efficient management of W. J. Douglas, a practical mill man and a pioneer leaser of the camp.

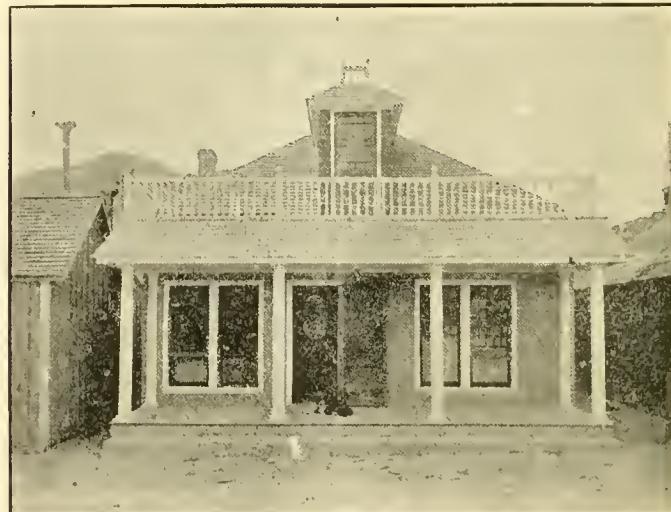
It was natural that the discoveries at Tonopah should have tempted prospectors to scatter to all points of the compass over this great mineral zone, with the result that there

are many small camps tributary to Tonopah, of which brief mention is made here.

About six miles from Tonopah is the property of the Tonopah Crown Point Mining Company, having a strong quartz surface vein 4 feet wide, averaging from \$60 to \$75 per ton in gold, silver and lead. This property is being developed by J. M. Healey, formerly manager of the Tonopah-Salt Lake Company.

Two miles from this property is situated the camp of Ray. The most prominent object at this camp is the Clark mountain of lime, which rises to a height of 1,400 feet, around which the principal mines are located.

The pioneer property is the Ray & O'Brien, owned by



RESIDENCE OF GEORGE WINGFIELD, TONOPAH, NEV.

the Ray Consolidated Gold Mining Company of Tonopah, of which Arthur Kunze is the manager. The main working shaft has been sunk to a depth of 300 feet, with drifts at every 100 foot level on a body of high-grade ore, carrying gold, silver and lead, several shipments having been made, the ore assaying from \$200 to \$300 per ton. Another shaft has been sunk 265 feet with drifts and crosscuts blocking out 20,000 tons of milling-grade ore, which, combined with 8,000 tons now on the dump, will be concentrated at the mine.

Adjoining this property is the Ray Extension Mining Company, which is now sinking a main shaft, and at a depth of 200 feet will crosscut to a vein which outcropped on the surface and assayed from \$34 to \$680 per ton in gold and silver.

On the northwest side of Clark Mountain are the 17 claims of the Mogul Mining Company, under the management of J. V. Priest. The surface indications on all of these claims are excellent. The veins are well defined, and the property is being opened up from the shaft of the Ray Consolidated, with a drift now in 500 feet. The company is about to start a crosscut tunnel a distance of 2,000 feet under the summit of Clark Mountain, which will cut a large number of ore bodies at different depths, and save the expense of hoisting.

Close to this mine a bed of turquoise has been uncovered by Kunze Brothers, and several parcels of gems have been sold in the East.

Another company operating in this district is the "We Hope," which is sinking on a vein bearing gold values. The entire district is covered with veins, and being near the Tonopah and Rye Patch water line, the cost of mining will not greatly exceed that of Tonopah.

Fourteen miles north of this is Liberty, where the old Liberty mine, owned by the Cramps of Philadelphia, is showing large bodies of fine silver ore. The Florence Extension is also developing a vein of high-grade ore.

LONE MOUNTAIN.

Fourteen miles southwest of Tonopah we find the Lone Mountain district, which takes its name from a rugged granite peak rising abruptly from the desert. Through the foothills on the south and over an area 12 miles in length and 6 miles wide, a large number of veins of silver, lead, copper and gold ores have been discovered.

The Nevada Alpine Company, whose properties are on the west slope of this mountain, last year shipped \$208,000 of silver lead carbonate ore, and paid \$70,000 in dividends. It has recently opened up a new body of ore assaying from \$180 to \$300 per ton in lead and silver, shipping two car-loads weekly.

Another producer was the General Thomas mine, owned by the Tonopah Belcher Mining Company, which has shipped about twenty carloads of lead carbonate ore, netting about \$37 per ton. A great future is predicted for this district.

HANNAPAH.

East of Tonopah 18 miles is the Hannapah mine, owned by Samuel Newhouse, where a body of high-grade silver ore is now being developed. The operations are much impeded by the enormous flow of water. Thirty-two miles east of this is

THE OLD CAMP OF REVEILLE.

This camp in the '80's produced over \$2,000,000 in silver, but for the last ten years has been practically dormant; Norman Reischke, almost its sole inhabitant during that period, brought about its revival by the discovery of the Last Chance mine. This he sold to Thomas J. Lynch of Tonopah for \$30,000, and it is now owned by the Southwestern Nevada Mines Company, composed of prominent Tonopah mining men, who are actively developing it with a force of 30 men. The old shaft was continued by the new owners, opening a remarkable cave, with many

thousands of tons of high-grade ore in sight. About 400 tons of this ore has been shipped, which, because of its desirable quality, costs nothing to treat at the smelters. Other properties are being opened up, and there is every reason to expect a great revival in this camp.

GOLD MOUNTAIN.

Six miles south of Tonopah is the Gold Mountain district, discovered by C. Runge, in September, 1901, the values being almost entirely in free-milling gold.

Many prospect holes have been sunk in this section, but the principal working property is the Tonopah Gold Mountain Company, owning eight claims. The company is strongly financed, with George W. Wingfield as general manager, and Owen Owens as superintendent. A trial shipment of three tons of ore was made in April, 1903, which netted \$535.67. Another body of gold ore has been opened up, and about 100 tons shipped, averaging \$130 per ton. Mr. Owens, the superintendent, has opened up the mine in a systematic manner by driving tunnels through the mountain from both east and west sides, which will connect, intersecting the various ore bodies. In driving the east tunnel a new vein was cut, averaging from \$30 to \$70 per ton. Shipments of higher grade ore are being made, which average \$130 per ton. Mining experts believe that this mine has a great future.

East of the Gold Mountain is the Gold Reef district, where the Free Gold Mining and Milling Company, under the management of James M. Meighan, are sinking and drifting on a vein, assaying from \$18 to \$90 per ton, gold. This mine has flattering prospects.

South of this property eight miles is the old Klondike district, and the Klondike mine is now being worked by leasers, who are shipping silver ore running over \$200 per ton. Eight miles east of this is the New Eldorado district, discovered October last, carrying gold values on the surface

running from \$18 to \$60 per ton. Several parties are actively developing their claims here.

In the foregoing description of Tonopah and its surrounding camps, no attempt has been made to enumerate all the prospects which are being actively developed, but the object has been to show that Tonopah is almost a generic name for one vast mineral zone.

By reference to the workings and particulars of the largest mines, it is demonstrated that as depth is attained the extent of the ore bodies increases, the values being well maintained. This is especially true of Tonopah, and the many valuable mines now being operated emphasize the fact that this is not a one-mine camp, and that its permanence as a great mining camp is fully assured.

For four years Tonopah struggled against adverse conditions, being separated from the railroad by 60 miles of intervening sand desert. Even the narrow-gauge railroad which has since been built has proven inadequate to cope with the business brought to it, and is now being converted into a broad-gauge road.

The fuel problem is now being solved by the development of large coal deposits at Coaldale, 36 miles west on the railroad, where coal for domestic or smelter purpose is found in great quantities. This will furnish cheap fuel to supply all demands.

The construction of many mills to locally treat the vast bodies of ore in the mines and on the dumps is now in contemplation, and then will come the era of regular dividends.

Today it is unreasonable to expect all the mines to extract their richest ore, and sort, sack and ship it at great expense and loss to the stockholders for the mere purpose of forcibly paying dividends.

Tonopah is unquestionably one of the greatest mining camps in the world, and undoubtedly there will be discovered many more veins of valuable ore.

MR. H. C. CUTTING, president of Tonopah Mining Exchange, was born thirty-four years ago in Iowa, but came to Nevada so early in life that he likes to claim the latter as his native State. He was fortunate in being born a poor boy, and his extraordinary success has come to him as a result of exceedingly hard work. "Luck" never contributed to his success. Hard work and study tell the story as it has in so many cases of our country's best men. While other boys were taking their rest and recreation, he was rising before daylight, summer and winter, covering his paper route and, later, when he entered the State University, trimming the electric street lamps of Reno,—doing work in four hours that his predecessor had required all day to do. Many a morning at two o'clock found him still studying, book in hand, pacing the floor to keep awake, when he must be up again at four. He with Frank H. Norcross and Fred Bristol were the first graduates of the Nevada State University in 1891. He taught the school at Candelaria for three years, was elected State Superintendent of Public Instruction at the age of twenty-four, the youngest State superintendent in the United States. Four years later, having been admitted to the bar, he compiled the present laws of the State of Nevada, known as Cutting's Code. His entire savings went into a home for his mother. He still owed \$1,900 on it, and went to Tonopah with \$4 in his pocket to make \$2,000, to pay off the mortgage and have \$100 for himself. Jim Butler



H. C. CUTTING.

staked him to a lease, the first on the Mizpah ledge. The mortgage is paid, Mr. Cutting has the hundred, and "then some." Whatever he does he does with enthusiasm and thoroughness. He is genial and frank and no one is afraid or bashful in his presence. He is friendly disposed and one cannot talk with him five minutes without being convinced of his absolute sincerity and upright character.

The Searchlight.

IN THE western part of Lincoln County, in Southern Nevada, is bound to take a prominent place among the richest districts in the State. The Quartette, owned by Boston capitalists, and the oldest property in the district, has a 20-stamp mill at the Colorado River, connected with the mine by a railroad, and also 20 stamps at the mine. This property is now on a dividend-paying basis. Next to the Quartette lies the Good Hope, which is proving to be a duplicate of the former, while the Duplex Company has a 10-stamp mill operating, and has opened up large ore bodies. The Cyrus Todd has made several shipments of high-grade ore, and is preparing to erect a mill. The Santa Fe has been operating under a bond, having milling ore from the grass roots and at one hundred and twenty feet struck water. The Southern Nevada, owned by New York capitalists, is operating a 10-stamp mill. The Blossom has some of the richest ore in the district. The Searchlight Mining and Milling Company's property, adjoining the Blossom mine, has three distinct separate ledges crossing it; on one a shaft has been sunk 300 feet, demonstrating an 18-foot ledge, assaying over \$18 per ton. Drifts over 240 feet show the same ledge, carrying same values. The Pompeii, the most northerly located property in the district, has just developed a large ore body at 200 feet level.

New England-Tonopah Mining Company

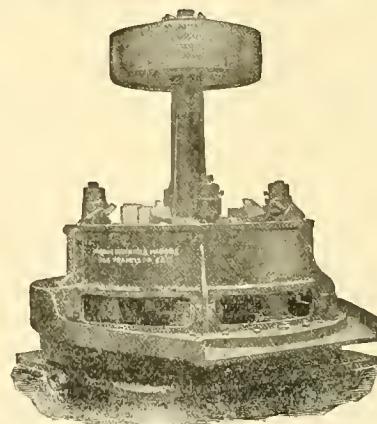
“ This property consists of nine claims, situated on the Southern slope of Mt. Butler, about two miles from the Mizpah. Working shaft on the Proudholm claim down 200 feet; new shaft on the Monitor claim down 80 feet. Stringers of quartz carrying values in both shafts. Equipped with a 50 h. p. steam engine with two 40 h. p. boilers. ~ ~ ~ ~ ~ 99

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GOLDFIELD, NEVADA

IT REMAINED for Harry Stimler and Billy Marsh, natives of Nye County, Nevada, two young Tonopah prospectors, to discover in the regions now confined within the limits of the Goldfield Mining district what had been overlooked for years by the old desert prospector. For many years these young men have prospected the barren hills of Southwest Nevada, often without means to supply themselves with the necessities of life. These young men were among the first to cast their lot in Tonopah, and their study of the formations of that camp led them to believe those vast bodies of ore or similar ones were to be found not far distant. The experience and success of these two young Nevadans should stimulate other youths of our country to like earnest faithful endeavor. Both of these young men are now possessed of comfortable fortunes. It was about November 10, 1902, that Stimler and Marsh first entered the district now known as Goldfield, and camped near what is now known as Rabbit Springs. These

springs are located one mile southwest of the Combination mine, and they immediately located the same, believing that they would be able to establish a mining camp. For a long time their efforts were grudgingly rewarded, but finally fortune's wheel turned in their favor, and they opened up some of the ledges on Columbia Mountain, including what is now known as the Sandstorm and Kendall claims, that have since produced hundreds of thousands of dollars. They had found gold float near where the Desert Queen now is, or about one mile north of the present town of Columbia. In examining the surrounding country, finding free gold, they made nineteen locations, and returning to Tonopah with samples which assayed \$12 in gold, they then returned to their camp, making more locations on Columbia Mountain, including the now famous Kendall claim, as well as the Sandstorm. They named the district Grandpa, which, after the Combination was discovered, was changed to Goldfield. The following April they took other specimens



HARRY STIMLER.



WM. A. MARSH.



BIRD'S-EYE VIEW OF GOLDFIELD, NEV.

to Tonopah, which, on being assayed, were found so rich and the fact becoming public, a stampede followed—many of the prospectors going on foot or with burros, en route to the new field. What they found has become history, and no attempt will be made in this brief article to follow them in their hopes, privations and successes, suffice it to say their steadfast zeal has opened up one of the greatest storehouses of wealth the world has ever known. The discovery of Goldfield, with that of Tonopah two years previous, and with the wonderful discoveries that have since been made in the surrounding districts, has opened up the largest mineral region in the United States, and will undoubtedly place

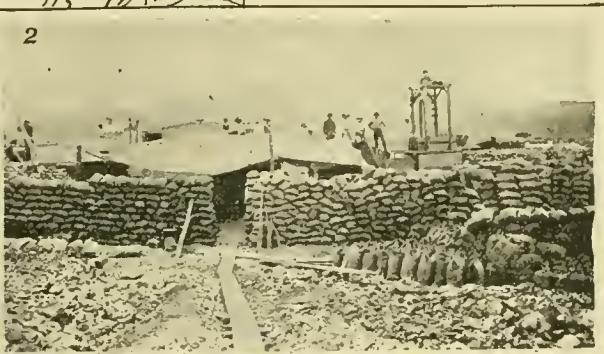
Nevada at the head of the column in the output of precious metals of the world.

The Goldfield mineral zone is five miles in length and nearly two miles in width, and lies in the form of a horseshoe. The most northern point is Black Butte, near Diamondfield, and the zone extends from this point westward, including in its ratio the Quartzite, Vernal, Daisy, Palace, Greatbend, Goldfield, Tonopah, Tonopah Club, Adams, Vindicator, to the Sandstorm; thence south to Columbia Mountain, where we find the January, Combination, Jumbo, Florence, St. Ives, Velvet, and scores of other properties. Easterly to Blue Bull are Lone Star and other meritorious properties. Within

1.



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3



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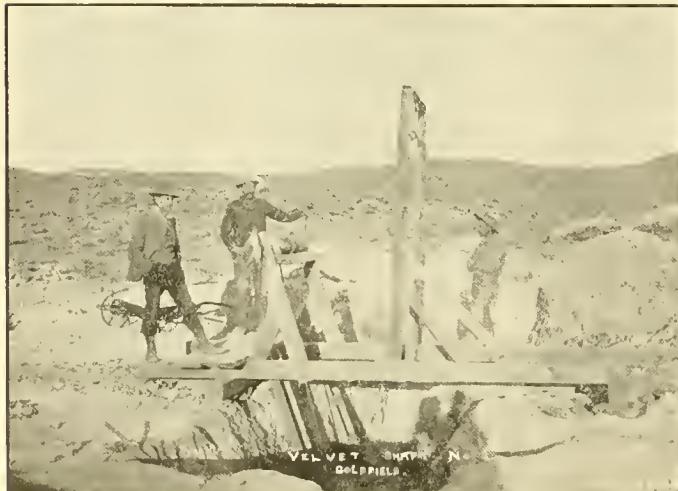


NO. 1, BUTTE MINE, GOLDFIELD DISTRICT; NO. 2, ORE SACKED FOR SHIPMENT, GOLDFIELD; NO. 3, FOUNDATION FOR COMBINATION MILL;
NO. 4, COMBINATION ORE READY FOR SHIPMENT.

this circle surface values are to be found nearly everywhere, the only question being which is the best place to begin work. Nearly all of the country lying within this area is considered good mining ground. There have been made many fabulous strikes within this known zone. Eighteen months since this camp was a desert, while today it is a veritable gold field—as the following record of production to December 1, 1904, of shipping and milling ore amounts to the grand total of \$3,658,000.

The following is a list of properties with their productions opposite raised with the least physical effort known in mining history :

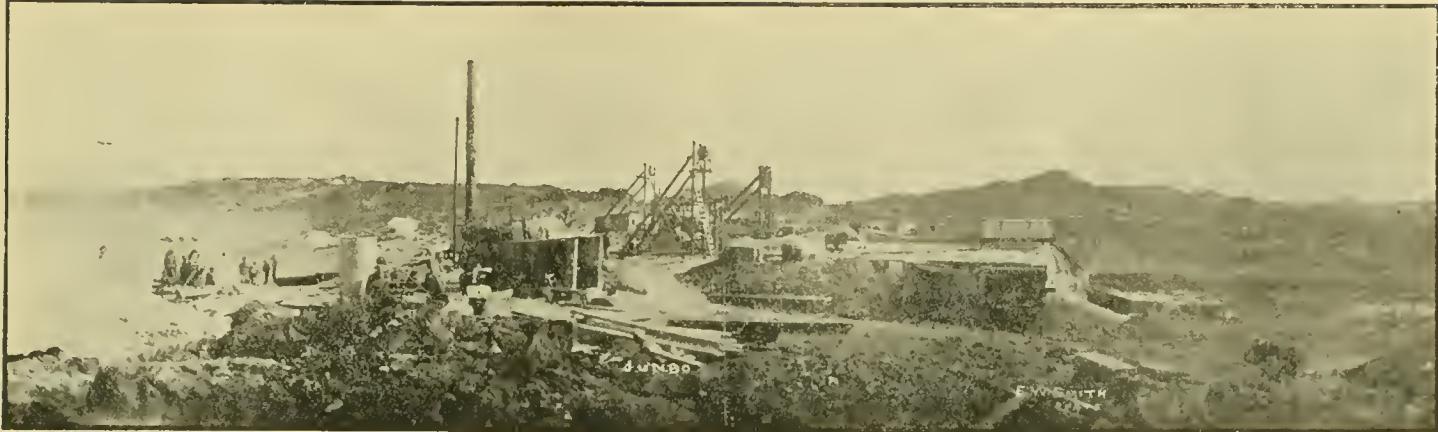
Jumbo (shipping ore)	\$1,200,000
Jumbo (milling ore)	250,000
Combination (shipping ore)	500,000



LOCATION MONUMENT ON SILVER BELL, NO. 1.

Combination (milling ore)	350,000
Tamary (shipping ore)	250,000
Tamary (milling ore)	385,000
Florence (shipping ore)	350,000
Florence (milling ore)	50,000
Kendall (shipping ore)	125,000
Kendall (milling ore)	100,000
St. Ives	50,000
Quartzite	20,000
Velvet	10,000
Tonopah Club	8,000
Vernal No. 2	5,000
Lone Star	5,000
Clermont	5,000

Besides these mines mentioned, there are at least twenty others in progress of creation, with good ore on the dumps, including both shipping and milling values. Many of them promise as well as those already named.



JUMBO MINING COMPANY, GOLDFIELD, NEV.; ORE ASSAYED AS HIGH AS \$250,000 PER TON.

Five towns, with an aggregate population of probably 8,000 inhabitants, have sprung up: Goldfield, Columbia, Diamondfield, Jumbo and Milltown. The first two are the principal towns. Lumber has been very difficult to get, and at present a majority of the population are living in tents, but these are rapidly giving place to lumber and adobe and in several places to business houses and residences of stone of very substantial character—one, a two-story stone building that cost \$15,000.

Nearly every branch of business is represented and prices are not exorbitant. There is abundance of water sufficient for domestic purposes; that from Rabbit Springs is especially of good quality. An electric light plant is being installed, a brewery is being built and a system of sewerage is being inaugurated; there is a telegraph and telephone system connected with Tonopah, two banks and another large stone one in course of construction, a Wells, Fargo & Company express

office, which does an astonishing business every day. An ice plant, cold storage and steam laundry and all other modern conveniences will be added as rapidly as possible. Goldfield and Columbia have live weekly newspapers, the *Goldfield News* and *Goldfield Review* respectively, and by sending a subscription to either or both of these papers you will be assured of having the latest reliable information of these camps. A public school has been established and churches and Sunday schools organized. The police regulations are very efficient, and all of the towns are as orderly as older settlements.

Captain John A. Hassell, a mining writer of extended reputation of South Africa, formerly consulting engineer of Cecil Rhodes, and now largely interested in Goldfield, states that "for its age and possibilities Goldfield stands preeminently alone." The early shipments of ore had to be hauled eighty miles to Sodaville and today twenty-eight miles to Tonopah.

All this will be changed when the contemplated railroad from Tonopah will have been finished; the surveys have been made and the road will be immediately pushed through to completion. When finished, a growth of unusual character is assured. The momentous question of the investor and mining man is: Are the mines permanent—will they go down? Captain J. A. Hassell further says, "Some will and some will not, in the usual ratio."

When this camp was first examined, it was turned down, and so was Johannesburg, South Africa, and by eminent men. A glance at the old files will give an idea of the adverse criticism of the famous Comstock in its early days, and later Cripple Creek, Colo., Bisbee and Jerome, Ariz., and Tonopah measure these criticisms with the actual result. The ores of Goldfield which have reached a depth of 300 feet have all turned from an oxide into a sulphide; this is strong evidence of permanency. Any other theory is without warrant. I will say the mines will always go down where the ore turns into the sulphide (and all others may go down even though they do not turn into sulphides). The Combination is down 315 feet, and the ore is now entirely sulphide; the Florence, 250 feet, and its ore bodies better defined maintaining their size and values; the January is down 235 feet, and in the lower workings there are seven distinct veins, with the same result, and the same remarks apply to the Jumbo at 200 feet. And so on down the line we find the St. Ives, Kendall, Tonopah Club, Florence and many other steady producers, and all holding their own with depth. In some cases holes of only twenty feet have yielded over \$10,000, in high-grade shipping ore ranging from hundreds to thousands of dollars per ton. The question then seems to find a ready response. If there is any uncertainty of the mines going down, it is at least a satisfaction that some of them have already produced fortunes on the surface, and a happier augury of the future that they do not show a sign of exhaustion.

This camp is unique, comparable in measure only with some of the great placer diggings, in that the mines give promise of yielding their owners a fortune during their lifetime,—better still were they only quarries instead of deep level mines. Hence it is safe to say that the average mortal prefers a fortune during a lifetime instead of waiting until near death to see the fruition of his enterprise. The Goldfield discussed is but a small affair compared to what it promises to be. It is situated in the center of a great mineral zone extending for many miles on all sides, from the Comstock on the north to the Amorgossa Valley on the south. There are a score of good payable mines idle today only awaiting capital and energy to yield their golden stream. From Mexico we hear of American capital pouring in to take up and work low-grade mines of \$8 and \$10 per ton, while in Nevada there are scores of mines running over \$15 per ton idle for want of capital. With the advent of Goldfield much of this will be changed, and this great camp being the richest producer of this vast zone, will undoubtedly become the center or base of operations. To the north, east, south and west new and promising camps are springing into being. Truly the name is no misnomer, and lucky is Nevada to have this new jewel added to her laurels.

We will now mention a few of the many meritorious properties in this district, beginning with the Blue Bull Mining Company, owners of eight claims adjoining the Combination on the east and Lone Star on the north. A strike was recently made on the Simmerane Fraction which produced ores assaying 216 ounces in gold per ton. The same cropping and leads run through the Kee and Pig claims of the Blue Bull Company, and 2½ ounces in gold have been obtained from the surplus dirt of the Kee claim. Leasers on the Iron Dike claim have uncovered a ledge that, after removing 12 inches of top soil, assayed \$29 in gold, and have now commenced sinking a 50-foot shaft on the ledge.



NO. 1, TONOPAH CLUB MINE; NO. 2, LOCATION OF RECENT RICH STRIKE, SANDSTORM MINE; NO. 3, ORE TEAM AT SANDSTORM.

The Blue Bull Dike, running 800 feet across the Pig and Blue Bull claims, is one of the most promising and continuous outcrops in the district. This property is crossed at frequent intervals by leads running at right angles, and is intersected by the Lone Star lead that is producing high-grade shipping ore. This property has been extensively prospected by trenching. One 50-foot shaft has been sunk and another started, both of which show ore of good value. Altogether nearly enough work has been done on the Blue Bull claims to obtain a patent, which the owners will soon secure. The officers and directors are O. H. Ramsey, president; Clay Peters, vice-president and manager; H. C. Morris, secretary, treasurer and superintendent; T. F. Dunnaway and George S. Nixon.

The Jumbo Mining Company is owned by J. McKane, C. D. Taylor, H. Taylor, Geo. McClellan and Geo. Kernick. This property has been exploited by leases and has, in the aggregate, produced more than any other property at Goldfield, and has done more, perhaps, to bring fame to the camp than any other one factor. All the work on this property has been done practically by leases. The Bowes-Kernick lease is said to be hoisting \$15,000 worth of ore per day, and it is predicted that at the expiration of the lease the sum extracted will reach at least \$1,500,000. From one pocket approximately $7 \times 7 \times 3$ feet, \$36,000 was extracted. The veins vary from the different leases from a few inches to twenty feet in width.

One hundred and fifteen tons were shipped to Selby during October from the Zinn lease that yielded \$50,000. Considerable milling ore is also on the dump. The Florence is another of the best properties in Goldfield. The lease held by J. P. Sweeney, F. Fathem, W. W. Elkins and G. W. Durgin has been one of the most productive of the district. Ore was discovered by Mr. Sweeney on the property last November, and after an ineffectual attempt to buy it, it was finally leased last January, work immediately beginning,

and shipping ore was extracted from the start. The ore shoot rose to almost a point within 15 feet of the surface, and at each level below it has lengthened uniformly until on the 200-foot level it is about 50 feet long with a strong vein four to six feet wide. Altogether about \$250,000 has been extracted. While production goes on at the rate of 200 to 300 sacks per day, there is an abundance of good milling ore on the dump. The ore shipped averages about \$300 a ton. About sixty men are employed on three shifts. The ore is being shipped to the Western Ore Purchasing Company at Reno, and to Salt Lake.

This brings us to the property of the Goldfield Mining Company, made famous by the strike on the January. A lease was taken on the January claim the 7th of last January by L. L. Patrick and John Jones, one-third each, the remaining third being held by B. J. Riley and Z. Kendall. January 22d ore was struck, and there has been shipped to date ore to a net value of \$310,000, with eight or nine thousand tons of milling ore on the dump, clearing an average value of \$40 per ton. Nothing is shipped carrying less than \$100 per ton, and all shipped has averaged \$200 and better. An assay office is connected with the mine, and shipments are closely checked. The officers of the Goldfield Mining Company are R. L. Johns, president; H. H. Clark, vice-president; H. F. Bragdon, secretary; A. G. Eisen, treasurer.

The St. Ives is another property of merit. It adjoins the Algea group on the west, the Paloverda Fraction of the Jumbo Extension Company on the south, and lies within a few feet of the east line of the Jumbo Mining Company. There have been two strikes on the property, and rich ore has been found, shafts have been sunk, and ore is now being sacked which assays several hundred dollars per ton.

From the St. Ives is but a short step to the Velvet Mining Company, on which are several leases. No. 1 lease



COMBINATION MINE.

is being worked by Messrs. Ricker, Shea and Taylor. Other leases on the property are also being developed. The owners of this property are principally San Francisco people who paid, as we are informed, \$100,000 for the majority interest, and the property has fully met all their expectations.

The Vernal Mining Company has several very valuable claims located within the rich mineral belt in the Diamondfield district adjoining the Black Ant property and the Vernal No. 2 claim, where \$500 ore is being sacked by the lessees. Four leases are being worked on this property. At the present time there are two shafts on the main ledge, one 40 and one 90 feet in depth; sensational values have been found, but not in quantity sufficient to be termed a strike. The Vernal can be classed as one of the best located properties in the Diamondfield district. The officers of this

company are Key Pittman, president; A. S. Watson, vice-president; H. B. Lind, secretary; Nye and Ormsby County Bank, treasurer.

The Tonopah Club property, together with the Bonanza, constitutes the property of the Conqueror Mining Company. Messrs. Weber, Ish, Heubach, Wingfield and Hennessy are the principal stockholders. The large ledge recently discovered exceeds all expectations of the owners, gold having been found outside the limits of what was formerly considered the foot wall at intervals of about sixty feet in width. Henry Weber has assumed the management of the mine, and reports that the showing is much better than he had anticipated. On the Bonanza claim the ledge has been exposed in several open cuts, and a force of men are now engaged in exploring the same. This claim is also showing up very satisfactory, and the management are much gratified with it.

The Sandstorm group occupies a position just north of Columbia Mountain, between two hills. The northernmost claim of the group is now the property of the Kendall Mining Company, 300 feet of which are under lease to T. L. Oddie and M. C. Gardner, Jr., known as the Sandstorm lease. A one-fourth interest in the lease is held jointly by J. Dufield, Geo. W. Richard and M. E. Ish. The rich deposit on this lease was found within 50 feet of its south end line; soil gathered on the surface netted \$8,800 per ton. One shipment of 15 tons of ore netted \$80,000. Nothing has been shipped under \$250 per ton. A large force of men are constantly employed. A gasoline hoist is in operation, and a shaft is being sunk by contract, where a blind ledge has been encountered carrying values from \$50 to \$80. The ledge matter is an altered rhyolite, through which run quartz veins carrying free gold in an iron oxide matrix. This property is considered one of the best in the district.

M. C. Gardner, Jr., Percy Gardner and others have machinery for a 10-stamp mill now in transit which will be installed at Columbia as a custom mill. It is expected to be in operation by February 1, 1905. Water for this will be supplied by a company of Eastern capitalists. This plant will involve an outlay of about \$200,000, and will have a capacity of 500,000 to 700,000 gallons per day. This will take care of the milling values not only of the Sandstorm, but of the many other properties in the district.

The officers of the Sandstorm Mining Company are composed of the following gentlemen: J. L. Butler, president; T. W. Kendall, vice-president; H. H. Brown, secretary; E. L. Mimms & Co., fiscal agent.

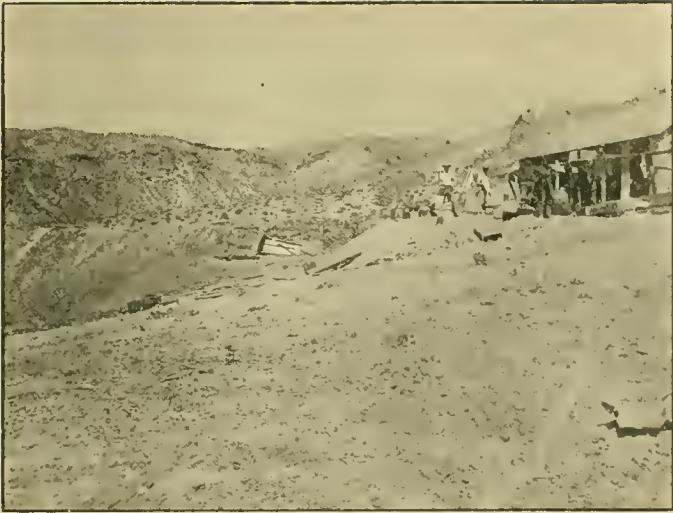
The Diamondfield Gold Mining Company is officered as follows: T. L. Oddie, president; G. S. Nixon, vice-president; A. S. Watson, secretary; Jack Davis, mine manager. This company owns three fractional claims of about 35 acres in all—the Harvey, Daisy and Quartzite. This property is located in the Diamondfield district adjoining the Black Butte,

Jumbo Extension, Goldfield Daisy and the Vernal No. 2 claim. This property has come into great prominence through the strike on the Riley lease on the Quartzite Fraction, where they struck a 32-foot ledge, assaying clear across its surface over \$150 per ton. This ledge has been opened up on the surface and shows nearly everywhere values almost sensational; the quartz croppings on the hill are enormous, and assays justify the statement that nearly all can be milled at a profit. This property was recently organized by Mr. Albert S. Watson, secretary, and through his active operations, it is rapidly advancing to the front in the list of Goldfield bonanzas.

The Kendall group is another property on which the Oddie-Gardner lease disclosed such marvelous values as to induce its owners to incorporate the same. It comprises three claims adjoining on the north the Sandstorm property,—the ore being sacked and containing rock assaying from \$300 to \$1,400 per ton, each sack containing several hundred dollars. About 40 square feet of the surface ground was cleaned and sacked to a depth of 18 inches, which carried large values in coarse gold and nuggets. The shaft has opened up a seven-foot ledge at surface, and at the 50-foot level at both points, assays run into the thousands. Should these values prove permanent with depth, this already fabulous strike will eclipse all others in the camp.

The Goldfield Daisy Syndicate owns three claims at Diamondfield adjoining the Great Bend Group, and Vernal No. 2, with the Junibo on the west. This property is well located and possesses a number of ledges from which many good assays have been obtained. There are two shafts being sunk by leasers, and the showing has been sufficient to justify a continuation of the development work.

The Jumbo Extension Mining Company is a property of unusual merit, owning two claims and two fractions very desirably located and adjoining the Diamondfield Gold Mining Company, the Black Butte and the Goldfield Daisy at



RAY & O'BRIEN MINE

Diamondfield. All claims on this property are being actively developed both by the company as well as by leasers. Each claim and fraction is surrounded by properties that have given the greatest strikes in the district. The officers consist of Key Pitman, president; Albert S. Watson, vice-president, and H. B. Lind, secretary.

The Empire Mining Company is pronounced by experts to be very valuable. It adjoins the Lone Star on the north and consists of one claim and three fractions, owners, Messrs. Weber, Ish, O'Brien and Mitchell. Two leases are being worked and the company is developing its property by trenches and a shaft. On one of these claims, the Silver Tip No. 10, one of the finest strikes in the district, was recently made in the shaft, gold running from \$8.00 to \$356.00 per

ton, which now proves from additional work to average \$100 per ton, thus making good shipping ore.

The Goldfield Black Butte Mining Company is developed by tunnel and shaft, and carries a large body of milling ore which is improving with depth, affording the hope that it may also soon become a shipping proposition.

The officers of The Black Ants Mining Company are A. L. Dougherty, president; Henry Weber, secretary and treasurer. The company owns several mining claims: The Macey No. 1, Macey Fraction, Black Ant, and Independence Lode. This property adjoins the Vernal Group at Diamondfield. Work is being actively advanced, with fair results.



A LEADING HOTEL AT GOLDFIELD, NEV.

The Goldfield Diamond Mining Company: Henry Weber, president; J. F. Mitchell, vice-president; P. L. Griffin, secretary; Tonopah and Goldfield Trust Company, treasurer; Kenneth Donnelan & Co., fiscal agents. This property adjoins on the south the Jumbo Extension, on the east the Spokane Mining Company, and on the west the Black Butte; is in excellent hands, and should have a good future.

Between Goldfield and Columbia there is a group of twelve claims owned by G. S. Phoenix. With a 150-foot shaft and 400 feet of cross-cutting, he has developed several fair ledges and opened up some milling ore. The property is known as the Esmeralda Mining Company.

The Bull Frog Mine syndicate of Bull Frog district, lying south of Goldfield about 80 miles, are owners of Bull Frog No. 1 and No. 2, and a water claim, owners, J. W. McGalliard, W. Detch, W. Fray, E. Cross, R. Lanka and P. O'Brien, each holding a one-sixth interest. The ledge cropping is 110 feet long and of unknown width. Assays on the surface have run from a few dollars into the thousands per ton. The owners expect a low-grade milling proposition to be realized from it. Four and a half miles east of Bull Frog is the Bull Frog Mining Company. The original Benson and Ladd strike carries values throughout. H. H. Clark of the January mine is a large stockholder. Other properties in this district are assaying well, having strong ledge matters. There are a store and tents at Bull Frog, and about 300 men are estimated to be in the district, with the number daily increasing. Three springs have been developed about three miles above the town, and water-pipes are now being laid.

The first year of Goldfield's existence was practically finished December 1, 1904, though active development was not begun until February. The showing during this time is a grand total of \$3,658,000. When one considers that the mines giving this enormous return are only a few of the many mines of the district, one may well wonder what the next year will bring forth.

The greatest surface pannings ever made in any mining camp is the wonderful record of this, the greatest mining district ever known in the world's history.

FACTS TO BE CONSIDERED.

1. It is the greatest gold camp ever discovered.
2. It has produced more gold in one year than Cripple Creek in three.
3. It is located in a State ranking third in gold production, with a great possibility of taking first place in 1905.
4. It is the poor man's camp, where millions are not necessary to take out the hidden treasure.
5. Mining can be done all the year round, as the climate is fine, dry and healthy.
6. Great strikes are of daily occurrence, and may strike "any man's" mine "any day," therefore stocks owned in any mine may be worth a fortune tomorrow.

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References: State Bank & Trust Co., Goldfield, Nev.; H. E. Woodward, Aspen, Colo.; H. J. Newman, Colorado Springs, Colo.

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ONE of the most commendable of the private enterprises in the State is that of The Lovelock Land and Development Company, composed of the following members: George S. Nixon, president; J. H. Thies, vice-president; R. C. Moore, secretary; Joseph Hill, H. Stoker, W. C. Noteware and F. M. Lee, directors. This is a work of which the simplicity and logic has been demonstrated in a gratifying manner the past summer through fine crops. It seems strange that the project has not been in operation long before. However, the example set by them is being followed repeatedly in other sections of the State. This company owns a ranch of 20,000 acres in



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Situated in the center of their ranch, showing the canal and laterals, four miles from the reservoir.



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Through this passes all waste or water not needed by the Company for their purposes.

the lower end of the Lovelock Valley, in Humboldt County. Old lake beds have been utilized as natural reservoirs, and the water of the Humboldt River is restrained by means of simple dams. The main canal of this company's system is seven miles long, and there are fifty miles of ditches. A good idea of the abundance of water under their control is gained from the accompanying cut, showing the waste-gate of the reservoir, through which passes all the water not needed by the company for their purposes. A section of the canal and its laterals is shown in another cut. This is Camp No. 2, and is situated in about the center of the ranch, four miles from the reservoir.

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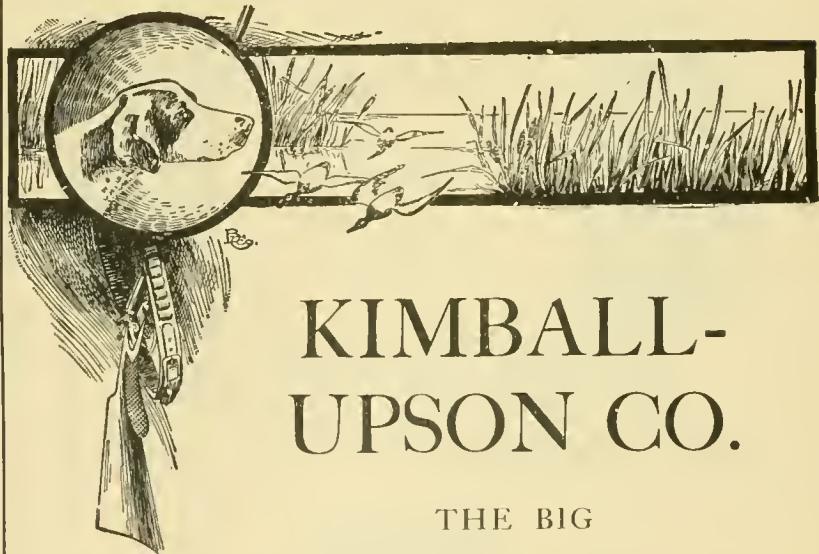
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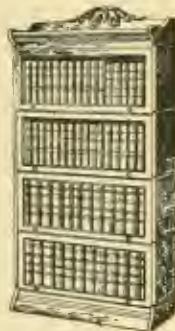
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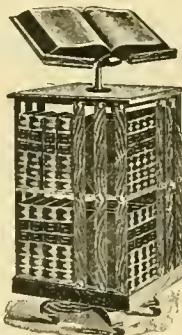
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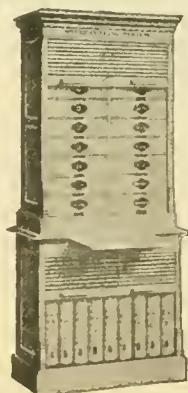


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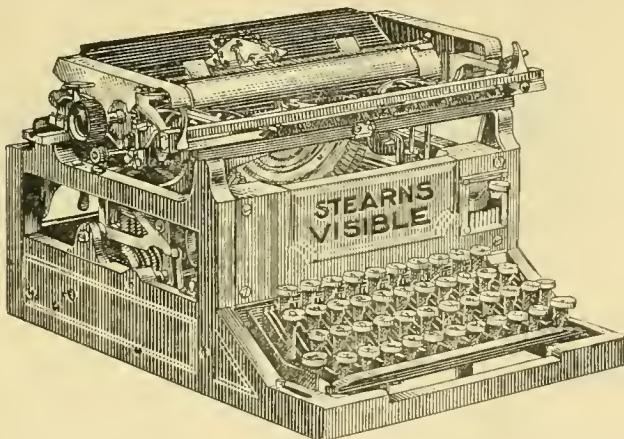
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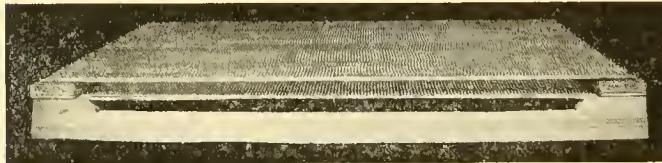
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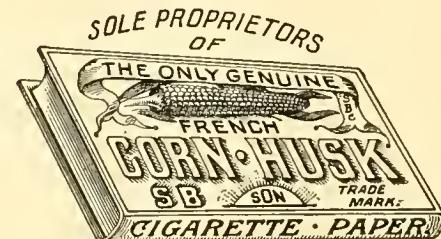
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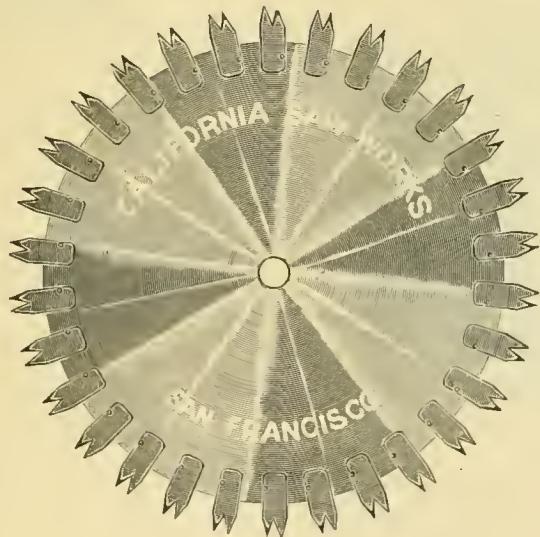
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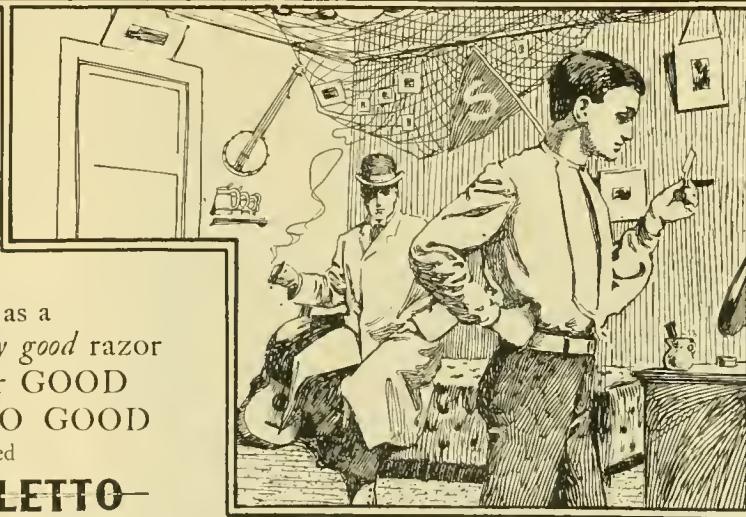
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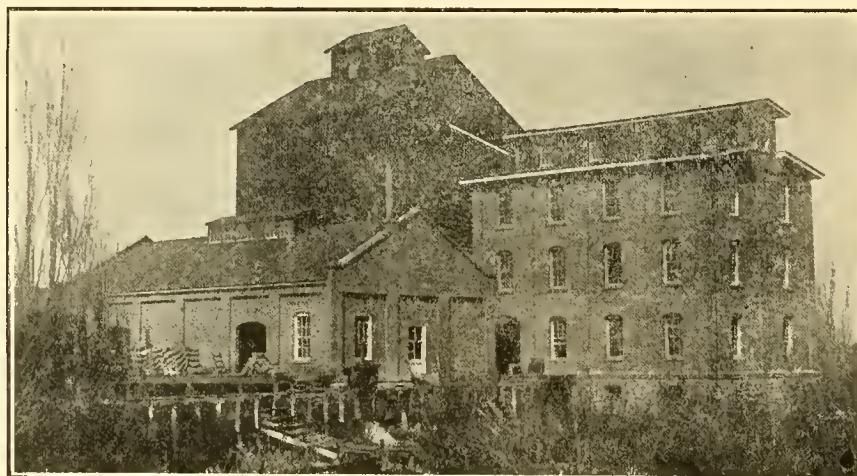
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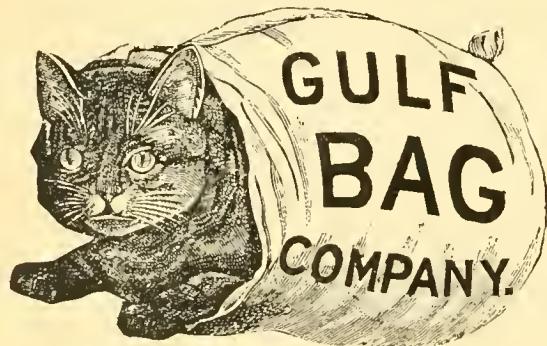
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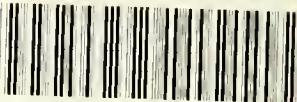


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